NOT MEASUREMENT SENSITIVE

MIL-STD-40051-7

DEPARTMENT OF DEFENSE STANDARD PRACTICE

TECHNICAL MANUALS

SUPPORTING INFORMATION

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1. SCOPE.

1.1 Scope. This standard establishes the technical content requirements for the preparation of supporting information (previously known as appendixes) for weapon systems and equipment Technical Manuals (TMs) and Depot Maintenance Work Requirements (DMWRs). These requirements are applicable for both paper and digital page-oriented TMs. Electronic delivery of supporting information included in TMs is accomplished through the use of the Supporting Information modular Document Type Definition (DTD). The DTD is available in a digital format. Refer to MIL-STD-40051 for information on obtaining this DTD. Supporting information requirements are included for the preparation of technical data that supplements the maintenance information contained in the body of the TM. This supplemental information includes reference data, general maintenance and parts information and associated illustrations.

2. APPLICABLE DOCUMENTS.

The applicable documents in section 2 of MIL-STD-40051 apply to this Part.

3. DEFINITIONS.

The definitions in section 3 of MIL-STD-40051 apply to this Part.

4. GENERAL REQUIREMENTS.

4.1 General. Supporting information shall be prepared for weapon systems, major equipment, components and applicable support and interface equipment. This information is used to supplement the maintenance information contained in the body of all levels of maintenance TMs. Supporting information shall be contained in work packages and become a part of a Supporting Information chapter.

4.2 Maintenance level applicability. Requirements contained in this standard are applicable to all maintenance levels unless specifically noted in bold and in parentheses (i.e., **-34 only**). The labeled requirements shall be applicable to all TMs containing that maintenance level. For example, a (**-20 only**) requirement would only be applicable to the following TMs: -12, -13, -14, -20, -23, and -24.

4.3 Standard tables. Various standard tables required are noted throughout the text of this standard in bold and in parentheses (i.e., **(standard table)**). The formats and table heading names of these standard tables shall have no deviations.

4.4 Preparation of digital data for electronic delivery. Technical manual data prepared in work package format and delivered digitally in accordance with this standard shall be Standard Generalized Markup Language (SGML) tagged using the modular Assembly DTD and Formatting Output Specification Instance (FOSI). The DTD and FOSI has been developed in accordance with MIL-PRF-28001 and ISO 8879. Refer to MIL-STD-40051 for information on obtaining or accessing this modular DTD and FOSI. SGML tags used in the modular DTD are noted throughout the text of this standard in bracketed, bold characters (i.e., **<macfwp>**) as a convenience for the TM author and to ensure that the tags are used correctly when developing a document instance.

4.4.1 Use of the DTDs / FOSIs. The modular DTDs referenced in this Part interpret the technical content and structure for the functional requirements contained in this Part and are mandatory for use. The modular FOSIs referenced herein interprets the style and format. As specified by the contracting activity, FOSIs or

style sheets may be used to produce final reproducible paper copy for all TMs prepared in accordance with this standard.

4.5 Content structure and format. The examples provided at the rear of this Part are an accurate representation of the content structure and format requirements contained herein and shall be followed to permit the effective use of the modular DTD for Supporting Information.

4.6 Style and format. Style and format requirements for the preparation of Department of Army TMs are contained in MIL-STD-40051-1; they are considered mandatory and are intended for compliance. Preferred general style and format requirements for Army TMs shall be provided by the procuring activity.

4.7 Work package development. Technical manual data developed in accordance with this standard shall be divided into individual, stand alone units of information work packages. A work package shall consist of descriptive, operational, maintenance, troubleshooting, support, or parts information for the weapon system or equipment.

4.8 Selective application and tailoring. MIL-STD-40051 contains some requirements that may not be applicable to the preparation of all technical manuals. Selective application and tailoring of requirements contained in MIL-STD-40051 are the responsibility of the contracting activity and shall be accomplished through the use of Appendix A, Technical Manual Content Selection Matrixes, of MIL-STD-40051. The applicability of some requirements is also designated by one of the following statements: unless specified otherwise by the contracting activity; as/when specified by the contracting activity; or when specified by the procuring activity.

5. **DETAILED REQUIREMENTS.**

5.1 Preparation of supporting information. Supporting information shall be developed as work packages and contained in a Supporting Information chapter **<sim>**. Supporting information work packages are described in 5.2 through 5.23. These work packages shall be placed in the TM in the order in which they are presented herein, as applicable.

5.2 References work package **<refwp>**. This work package shall list all publications referenced in the TM and required by the user to operate and/or maintain the equipment. It shall consist of a scope **<scope>** and publication list **<publist>**.

5.2.1 Scope **<scope>**. Information concerning the use and content of the references work package shall be prepared. (Refer to figure 1.)

5.2.2 Publication list **<publist>**. Individual paragraphs shall be prepared for each publication type. All related/referenced publications, with the exception of those publications that are currently unpublished, shall be listed. This list shall identify the publications by title **<name>** and number **<pubident>**. If the publication is nongovernment, the source shall be given. Titles shall be listed alphabetically under each publication type. (Refer to figure 1.) If a list of Applicable Publications (LOAP) exists, it may be referenced.

5.3 Maintenance allocation chart (MAC) work package **(-20/AVUM level only) <macwp>**.

a. This work package shall list the applicable maintenance functions assigned to each maintenance level and shall be published only in equipment TMs containing unit or aviation unit maintenance instructions.

b. This work package shall be prepared in Functional Group Code (FGC) sequence to consolidate and identify those groups on the list which involve identified maintenance functions. The MAC shall be prepared according to the approved source data provided by the procuring activity.

c. The data described in 5.3.1 through 5.3.5 shall be prepared for the MAC work package (both standard and three-level for Army aviation formats are included for each).

5.3.1 Introduction for standard format MAC work package **(-20/AVUM only) <intro>**. The following text shall be prepared and included verbatim. (Refer to figure 2 .)

"MAINTENANCE ALLOCATION CHART (MAC)

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit — includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support — includes an F subcolumn.

General Support — includes an H subcolumn.

Depot — includes a D subcolumn.

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.

2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.

3. Service. Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms.

4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

8. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.

9. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services — Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting — The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (ET).

Disassembly/assembly — The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions — Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

10. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical

publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

11. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) — Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

Column (2) — Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column (3) — Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above.)

Column (4) — Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

C — Operator or crew maintenance

O — Unit maintenance

F — Direct support maintenance

L — Specialized repair activity (SRA)

H — General support maintenance

D — Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) — Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) — Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) — Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) — Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) — Nomenclature. Name or identification of the tool or test equipment.

Column (4) — National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) — Tool Number. The manufacturer's part number, model number, or type number.

Explanation of Columns in the Remarks

Column (1) — Remarks Code. The code recorded in column (6) of the MAC.

Column (2) — Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC."

5.3.2 Introduction for three-level Army aviation MAC work package **(-20/AVUM only) <intro>**. The following text shall be prepared and included verbatim. (Refer also to figure 3 .)

"**MAINTENANCE ALLOCATION CHART (MAC)**

INTRODUCTION

Aviation Maintenance Allocation Chart

This MAC assigns maintenance functions in accordance with the Aviation Maintenance concept for Army aviation. These maintenance levels — Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM), and depot maintenance — are depicted in the MAC as:

AVUM — corresponds to an "O" code in the Repair Parts and Special Tools List (RPSTL).

AVIM — corresponds to an "F" code in the RPSTL.

DEPOT — corresponds to a "D" code in the RPSTL.

The maintenance to be performed below depot and in the field is described as follows:

Aviation Unit Maintenance (AVUM). AVUM activities will be staffed and equipped to perform high frequency "On-Aircraft" maintenance tasks required to retain or return aircraft systems to a serviceable condition. The maintenance capability of the AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of Ground Support Equipment (GSE), facilities required, authorized manning strength, and critical skills available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources, and air mobility requirements.)

1. Company Size Aviation Units. Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft operational readiness. Perform maintenance inspections and servicing to include preflight, daily, intermediate, periodic (or phased), and special inspections, as authorized by the MAC or higher headquarters. Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, Built-In Test Equipment (BITE), installed aircraft instruments, or Test, Measurement, and Diagnostic Equipment (TMDE). Replace worn or damaged modules/components that do not require complex adjustments or system alignment and which can be removed/installed with available skills, tools, and ground support equipment. Perform operational and continuity checks and make minor repairs to the electrical system. Inspect, service, and make operational, capacity, and pressure checks to hydraulic systems. Perform servicing, functional adjustments, and minor repair/replacement to the flight control, propulsion, power train, and fuel systems. Accomplish airframe repair that does not require extensive disassembly, jigging, or alignment. The manufacture of airframe parts will be limited to those items which can be fabricated with tools and equipment found in current air mobile tool and shop sets. Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the support AVIM.

2. Less than Company Size Aviation Units. Aviation elements organic to brigade, group, battalion headquarters, and detachment size units are normally small and have less than 10 aircraft assigned. Maintenance tasks performed by these units will be those which can be accomplished by the aircraft crew chief or assigned aircraft repairman and will normally be limited to preventive maintenance, inspections, servicing, spot painting, module/component fault diagnosis, and replacement of selected modules/components. Repair functions will normally be accomplished by the support AVIM unit.

Aviation Intermediate Maintenance (AVIM).

1. Provides mobile, responsive "one-stop" maintenance support. (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance.)

2. May perform all maintenance functions authorized to be done at AVUM. Repair of equipment for return to user will emphasize support of operational readiness requirements. Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment.

3. Establishes the Direct Exchange (DX) program for AVUM units by repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level.

4. Inspects, troubleshoots, performs diagnostic tests, repairs, adjusts, calibrates, and aligns aircraft system modules/components. AVIM units will have capability to determine the serviceability of specified modules/components removed prior to the expiration of the Time Between Overhaul (TBO) or finite life. Module/component disassembly and repair will support the DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings, and items of common hardware. Airframe repair and fabrication of parts will be limited to those maintenance tasks which can be performed with available tools and test equipment. Unserviceable reparable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to depot maintenance.

5. Performs aircraft weight and balance inspections and other special inspections which exceed AVUM capability.

6. Provides quick response maintenance support, including aircraft recovery and air evacuation, on-the-job training, and technical assistance through the use of mobile maintenance contact teams.

7. Maintains authorized operational readiness float aircraft.

8. Provides collection and classification services for serviceable/unserviceable materiel.

9. Operates a cannibalization activity in accordance with AR 710-2 (Supply Policy Below the Wholesale Level) and DA PAM 710-2-2 (Supply Support Activity System Manual Procedures). (The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additional intermediate maintenance support will be provided by the supporting nondivisional AVIM unit.)

Use of the MAC

NOTE

Approved item names are used throughout this MAC. Generic terms/nomenclature (if any) are expressed in parentheses and are not to be considered as official terminology.

This MAC assigns maintenance functions to the lowest level of maintenance, based on past experience and the following considerations:

Skills available.

Work time required.

Tools and test equipment required and/or available.

Only the lowest level of maintenance authorized to perform a maintenance function is indicated. If the lowest maintenance level cannot perform all tasks of any single maintenance function (e.g., test, repair), then the higher maintenance level(s) that can accomplish additional tasks will also be indicated.

A maintenance function assigned to a maintenance level will automatically be authorized to be performed at any higher maintenance level.

A maintenance function that cannot be performed at the assigned level of maintenance for any reason may be evacuated to the next higher maintenance level. Higher maintenance levels will perform the maintenance

functions of lower maintenance levels when required by the commander who has the authority to direct such tasking.

The assignment of a maintenance function will not be construed as authorization to carry the related repair parts or spares in stock. Information to requisition or otherwise secure the necessary repair parts will be as specified in the associated RPSTL.

Normally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, at the request of a lower maintenance level and on a one-time basis, transfer of maintenance functions to the lower level may be accomplished by specific authorization of the maintenance officer of the higher level of maintenance to which the function is assigned. The special tools, equipment, etc., required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility for the function. The higher level of maintenance will provide technical supervision and inspection of the function being performed at the lower level.

Maintenance Functions

Maintenance functions will be limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

3. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

8. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance, and Recoverability (SMR) code.

9. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services — Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting — The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly — The step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least component identified as maintenance significant (i.e., assigned an SMR code) for the level of maintenance under consideration.

Actions — Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

10. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

11. Rebuild. Those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Columns (1) and (2) - Functional Groups. The functional groupings in the sample below identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

GROUP NUMBER	DESCRIPTION
04	POWER PLANT
0401	ENGINE, GENERAL
	Servicing, handling inspection requirements, overhaul and retirement schedules. External lines and hoses. (As applicable.)

GROUP NUMBER	DESCRIPTION
0402	COMPRESSOR SECTION (COLD SECTION MODULE)
	Rotor, blades, vanes, impeller, stators, inlet guide vanes, main frame, particle separator, bleed valve, bearings, seals, external lines and hoses.

GROUP NUMBER	DESCRIPTION

0403	COMBUSTION SECTION (HOT SECTION MODULE) Liners, nozzles, stators, rotor, seals, couplings, blades.
0404	POWER-TURBINE (POWER TURBINE MODULE) Nozzles, rotors, blades, exit guide vanes, exhaust frame, drive shaft, bearings, seals, external lines and hoses.
0405	ACCESSORY GEAR BOX (ACCESSORY SECTION MODULE) Input and output gears, seals, chip detector, housings, drive shaft, bearings.
0406	FUEL SYSTEM Fuel control, fuel boost pump, governors, fuel filter assembly, sequence valve, fuel manifold, fuel nozzle, external lines and hoses.
0407	ELECTRICAL SYSTEM Electrical control units, exciters, thermocouples, ignition harness, electrical cables, history record, torque overspeed sensor, Np sensor, external lines and hoses.
0408	OIL SYSTEM Tanks, oil filter, oil cooler, lube and scavenger pumps, oil filter bypass sensor, external lines and hoses.

GROUP NUMBER | DESCRIPTION

Column (3) — Maintenance Function. Column (3) lists the functions to be performed on the items listed in column (2).

Column (4) — Maintenance Level. The maintenance levels AVUM, AVIM, and DEPOT are listed on the MAC with individual columns that include the work times for maintenance functions at each maintenance level. Work time presentations such as "0.1" indicate the average time (expressed in manhours in whole hours or decimals) it requires a maintenance level to perform a specified maintenance function. If a work time has not been established, the columnar presentation will indicate "--." Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

Column (5) — Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated function.

Column (6) — Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) — Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) — Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) — Nomenclature. Name or identification of the tool or test equipment.

Column (4) — National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) — Tool Number. The manufacturer's part number.

Explanation of Columns in the Remarks

Column (1) — Remarks Code. The code recorded in column (6) of the MAC.

Column (2) — Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC."

5.3.3 MAC.

5.3.3.1 MAC entries.

a. The basic entries in the MAC shall be a list of functional groups applicable to the end item which require maintenance. The term functional group applies to reparable assemblies and subassemblies, i.e., spares (any reparable component required for the maintenance or repair of an end item), but not to repair parts (any consumable, nonreparable component required for the maintenance or repair of an end item). The end item group shall be numbered "00," or its equivalent "AA."

b. Entries shall be item names (a basic name and a noun word or phrase modifier, e.g., transformer, pulse, low power) and, where applicable, type designators, without stock or part numbers (P/Ns) if possible, in order to minimize need for subsequent change; however, entries shall contain positive identification. Parts that are not subject to maintenance shall not be listed in table 1 of the MAC.

c. All item names of MAC functional groups shall be official nomenclature in accordance with the RPSTL nomenclature or other source as specified by the procuring activity. Reverse word order shall be used in the MAC.

d. The maintenance code entered in the third position of the Source, Maintenance, and Recoverability (SMR) code in the RPSTL shall be used to identify the lowest category of maintenance that is authorized to remove, replace, and use the spare or repair parts. SMR codes are further defined in MIL-STD-40051-6.

e. If the maintenance function is a replace function only for a repair part, the repair part shall not be listed in the MAC, unless not listing the repair part would result in omission of the Next Higher Assembly (NHA) group number; in this case, the part shall be listed in order to list the NHA functional group number.

f. All items in the MAC shall specify the maintenance level(s) to which a function is authorized.

g. Exception is authorized to ammunition MACs to permit use of maintenance function headings that better describe or identify ammunition peculiar maintenance functions. The headings used and their definitions shall be included in the appropriate ammunition TM(s).

5.3.3.2 MAC format. The MAC **<mac> (standard table)** shall be prepared in the format shown in figure 4 (standard) or figure 5 (aviation) **<avmac>**, as applicable.

a. For an explanation of data to be listed in columns of the MAC, refer to the introduction information presented in 5.3.1 or 5.3.2 as applicable.

b. The group number **<groupno>** shall be entered in column 1, the nomenclature of the spare (component/assembly) **<compassem>** shall be entered in column 2, and the maintenance function **<maintfunc>** shall be listed in column 3 of the MAC.

c. Column 4 of the standard MAC shall be divided into four main headings, one for each level of maintenance **<maintclass>** (i.e., unit **<unit>**, direct support **<direct>**, general support **<gensup>**, and depot **<depot>**). Column 4 of the three-level aviation MAC **<avmaintclass>** shall be divided into three main headings (i.e., AVUM or unit **<avum>**, AVIM or intermediate **<avim>**, and depot **<depot>**).

d. A work time figure must appear in the subcolumn for the maintenance level authorized to perform the maintenance listed in column 3.

e. Reference numbers for all required tools and test equipment **<terefs>** shall be listed in column 5 of the MAC. These reference numbers shall correspond to the appropriate tools/test equipment listed in the tools and test equipment table.

f. Reference letters for applicable remarks **<remarkrefs>** shall be listed in column 6 of the MAC. These reference letters shall correspond to the appropriate remarks listed in the remarks table.

5.3.4 Tools and test equipment requirements **<tereqtab>**. A tabular list **(standard table)** of all tools and test equipment, both special and common, required to maintain the equipment shall be prepared in accordance with the format shown in figure 6 or figure 7 , as applicable. Common tools shall not be included on this list when they are part of an existing set, kit, or outfit authorized to the intended user; however, the authorized set, kit, or outfit which contains the prescribed common tools shall be listed.

5.3.5 Remarks **<remarktab>**. Remarks **(standard table)** pertinent to maintenance functions shall be prepared in accordance with the format shown in figure 6 or 7 , as applicable.

5.4 RPSTL work package **(-20/AVUM level or above only) <rpstlwp>**. This work package shall be prepared in accordance with MIL-STD-40051-6.

5.5 Components of end item (COEI) and basic issue items (BII) lists work package **(operator only) <coeibiiwp>**. This work package shall be prepared as an inventory for the equipment to ensure safe and efficient operation. The data described in 5.5.1 through 5.5.3 shall be prepared.

5.5.1 Introduction for COEI and BII lists work package **(operator only) <intro>**. The following introduction shall be prepared and included verbatim. (Refer also to figure 8.)

"**COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS**

INTRODUCTION

Scope

This work package lists COEI and BII for the *(insert the short end item name)* to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the *(enter name of end item)*. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the *(enter name of end item)* in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the *(enter name of end item)* during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) — Illus Number. Gives you the number of the item illustrated.

Column (2) — National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (3) — Description, CAGEC, and Part Number. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the CAGEC (commercial and Government entity code) (in parentheses) and the part number.

Column (4) — Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. *(Add the following only as applicable. Replace Xs with appropriate codes and model numbers.) These codes are identified below:*

Code	***Used on***
XXX	*Model XXX*
XXX	*Model XXXX*
XXX	*Model XXXXX*

Column (5) — Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) — Qty Rqr. Indicates the quantity required."

5.5.2 COEI list **<coei>**. This list shall be prepared as an illustrated tabular list of components of the end item (spare/repair parts that are removed from the major end item and separately packaged or stowed for transportation or movement; includes on-board spares). The illustrations shall be placed above the list. The arrangement of the illustrations and list shall be similar to that shown in figure 8.

5.5.2.1 List **<coeitab>**. The COEI list **(standard table)** shall include the headings and basic content shown in figure 8, applicable to the specific equipment. The description of each item shall consist of the approved

Federal item name **<desc>**, followed by a short description when needed. Items shall be listed alphabetically. The Commercial and Government Entity Code (CAGEC) **<cageno>** shall be located below the item and in parentheses. The part number **<partno>** shall follow the CAGEC. The stowage location of COEI shall also be included in the description column. When more than one model or configuration is applicable and Usable On Codes (UOC) **<uoc>** are assigned, the UOC shall appear in a separate column adjacent to the description column. (Refer to figure 8.) When on-board spares apply, there shall be a break in the text of the list and a new heading ON-BOARD SPARES shall be used. A list of the on-board spares shall appear in the same format as required for the basic COEI list.

5.5.3 BII list **<bii>**. This tabular list **(standard table)** shall be prepared in the same format and include similar content (tailored to the applicable BII) as required for the COEI list. The stowage location of BII shall also be included in the description column. (Refer to 5.5.1 and figure 8 .)

5.6 AAL work package **(operator only) <aalwp>**. This work package shall list all AAL items (i.e., items not issued with the end item; not listed on the end item engineering drawing as part of the end item, National Stock Number (NSN) configuration; not required to be turned in with the end item; separately authorized by MTOE, TDA, CTA, or JTA; and provided for information only). The data described in 5.6.1 and 5.6.2 shall be prepared.

5.6.1 Introduction **<intro>**. The following introduction (text below within the quotation marks) shall be prepared and included verbatim. (Refer also to figure 9.)

"**ADDITIONAL AUTHORIZATION LIST (AAL)**

INTRODUCTION

Scope

This work package lists additional items you are authorized for the support of the *(enter short item name)*.

General

This list identifies items that do not have to accompany the *(enter short item name)* and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL

Column (1) — National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) — Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (in parentheses) and the part number.

Column (3) — Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. *(Add the following only as applicable. Replace Xs with appropriate codes and model numbers.) These codes are identified below:*

Code ***Used on***

XXX	*Model XXX*
XXX	*Model XXXX*
XXX	*Model XXXXX*

Column (4) — Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) — Qty Recm. Indicates the quantity recommended."

5.6.2 AAL list **<aal>**. A tabular list **(standard table)** of all additional authorized items shall be prepared. The format and general content of the list shall be prepared as shown in figure 9. The headings and subsequent information for this list shall be the same as the COEI and BII lists except the ILLUS NUMBER column required for the COEI and BII lists shall not apply since there are no illustrations used, and the QTY column shall be QTY RECM (quantity recommended). The items shall be listed alphabetically.

5.7 Expendable and durable items list work package **<explistwp>** . This work package shall be prepared to provide the TM user a list of all expendable and durable items called out in the TM text which are necessary to operate and/or maintain the equipment. The following data described in 5.7.1 and 5.7.2 shall be included.

5.7.1 Introduction for expendable and durable items list work package **<intro>**. The following introduction (text below within the quotation marks) shall be prepared and included verbatim. (Refer also to figure 10).

"**EXPENDABLE AND DURABLE ITEMS LIST**

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the *(enter equipment/end item name)*. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) — Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (item 5, WP 0098 00).).

Column (2) — Level. This column identifies the lowest level of maintenance that requires the listed item *(include as applicable: C = Operator/Crew, O = Unit/AVUM, F = Direct Support/AVIM, H = General Support, D = Depot)*.

Column (3) — National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) — Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) — Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc."

5.7.2 Expendable and durable items list **<explist>**. This list **(standard table)** shall be prepared in tabular format as shown in figure 10. No illustrations shall be prepared for these items. Items appearing in the tabular list shall appear in alphabetical sequence by item name. Items to be listed shall be those approved by the procuring activity.

5.8 Stowage and decal / data plate guide work package **(operator only) <stowagewp>** . This work package shall begin with an introduction **<intro>** which gives the scope of the work package. An illustration detailing the location **<stowinfo>** of applicable COEI, BII, and AAL items shall be prepared for this work package. As applicable, illustrations detailing the locations **<decalinfo>** of all decals and data plates shall be prepared and included. (Refer to figure 11 for an example.)

5.9 On-vehicle equipment loading plan work package **(operator only) <eqploadwp>**. This work package shall be prepared when applicable to the equipment. The loading plan shall include information provided by the procuring activity. The data described in 5.9.1 and 5.9.2 shall be included.

5.9.1 Introduction **<intro>**. A brief scope statement shall be prepared explaining the purpose of the loading plan and identifying the equipment covered by the on-vehicle equipment loading plan work package. (Refer to figure 12.)

5.9.2 Illustrated loading plan list(s) **<loaddesc>**. Lists of the items identified on the illustrations shall be prepared. (Refer to figure 12.) Illustrations shall be prepared to show the location of all applicable equipment. External and internal views shall be used. As applicable, both tactical and nontactical situation loading configurations shall be shown. The list **<loadlist>** shall be located on the same page or the page adjacent to the associated illustration(s). The list shall have two columns: the item number column **<callout>** (corresponding to the illustration item numbers) and the item name **<item>**.

5.10 Tool identification list work package **(-20/AVUM level or above only) <toolidwp>**. This work package shall include a list of the tools authorized to the levels of maintenance covered in the narrative portion of the TM and as referenced by the initial setups. The following shall be prepared. The data described in 5.10.1 and 5.10.2 shall be included.

5.10.1 Introduction for tool identification list work package **(-20/AVUM level or above only) <intro>**. The following introduction (text below within the quotation marks) shall be prepared and included verbatim. (Refer to figure 13.)

"**TOOL IDENTIFICATION LIST**

INTRODUCTION

Scope

This work package lists all common tools and supplements and special tools/fixtures needed to maintain the *(insert equipment name)*.

Explanation of Columns in the Tool Identification List

Column (1) — Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., Extractor (item 32, WP 0090 00)).

Column (2) — Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., Gage, belt tension).

Column (3) — National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) — Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

Column (5) — Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this work package."

5.10.2 Tool identification list **<avtoolidlist>**. Applicable information for this tabular list **(standard table)** shall be prepared and formatted as shown in figure 13. Item names shall be in alphabetical order.

5.11 Illustrated list of manufactured items work package **(-20/AVUM level or above only) <manuwp>**. This work package shall include technical information for each item authorized to be manufactured or fabricated by unit/AVUM, direct support/AVIM, or general support maintenance personnel (e.g., all "MO," "MF," and "MH" source coded items authorized in the applicable RPSTL). The work package shall include the data described in 5.11.1 through 5.11.3.

5.11.1 Introduction for illustrated list of manufactured items work package **(-20/AVUM level or above only) <intro>**. The following introduction (text below within the quotation marks) shall be prepared and included verbatim. (Refer also to figure 14.)

"**ILLUSTRATED LIST OF MANUFACTURED ITEMS**

INTRODUCTION

Scope

This work package includes complete instructions for making items authorized to be manufactured or fabricated at the *(enter applicable maintenance level)*.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the page which covers fabrication criteria.

Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. *(When applicable, a reference to the associated RPSTL TM or RPSTL work package shall be entered*

here.) All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration."

5.11.2 Index of manufactured items **<manuindx>**. A part number description **<partno>** or drawing index **<dwgno>** shall be prepared which lists part numbers, in alphanumeric order, of all items illustrated in this work package. The part number description **<name>**, or drawing of each manufactured item shall be cross-referenced to the applicable figure number **<figno>**. (Refer to figure 14.)

5.11.3 Illustrations of manufactured items. The following information shall be prepared:

a. Illustrations shall be prepared which contain sufficient views to portray all features of the item. More than one illustration may appear on one page to save space. (Refer to figure 14.)

b. All instructions (explanatory text and list of bulk materials) needed by maintenance personnel to manufacture the item (refer to figure 14) shall supplement the illustrations and shall contain the following data.

(1) All dimensional, location, and processing instructions needed to manufacture the item shall be included (e.g., 30-in. long, top surface, primer coating).

(2) A description of the item to be manufactured, including the P/N and name, shall be prepared.

(3) A list of bulk materials needed to manufacture the item shall be prepared. The list of bulk materials shall consist of the PN, NSN, or specification number of the raw bulk material to be used in manufacture of the item and shall cite the technical characteristics (i.e., standards, specifications, conditions, dimensions, and any other pertinent data).

(4) When applicable, reference shall be made to the associated RPSTL TM or RPSTL work package (for combined TMs).

5.12 Torque limits work package **(-20/AVUM level or above only) <torquewp>**. Information shall be prepared to provide applicable torque values **<torqueval>** (expressed in lb-ft or lb-in. terms), data as to bolt grade markings and their proper identification, and specific torque sequencing requirements. The torque limits work package may begin with an introduction **<intro>**. Specific instructions such as torque limits for dry and wet fasteners, fastener sizes and thread patterns, etc., shall be prepared to follow the introduction. Refer to figure 15 for an example of the type of information presented in a torque limits work package.

5.13 Mandatory replacement parts work package **(-20/AVUM level or above only) <mrplwp>**. This work package shall list all mandatory replacement parts referenced in the task initial setups and procedures. This work package shall include an introduction **<intro>** and a tabular list **<mrpl> (standard table)** of mandatory replacement parts. Items in the list shall be identified by an item number **<itemno>**, P/N **<partno>**, NSN **<nsn>**, nomenclature **<name>**, and quantity **<qty>**. Items shall be listed in alphanumeric order by P/N. (Refer to figure 16.)

5.14 Ammunition marking information work package **<ammowp>**. This work package shall be prepared to provide applicable information on ammunition marking **<markings>**, classification, identification **<ammotype>**, care and handling **<handling>**, preservation, transportation, authorized rounds, preparation

for firing, fuzes, and packing **<packing>**. Reusable original packaging and containers shall be identified for return or temporary storage of ammunition in its original configuration. Information on classifying, identifying, caring for, handling, etc., nonammunition Class V items shall be prepared, when applicable. Individual paragraphs shall be prepared for each ammunition type/classification. (Refer to figure 17 for sample ammunition data presentation.)

5.15 Foreign ammunition (NATO) work package **<natowp>**. A work package to describe foreign ammunition shall be prepared when applicable. The requirements of 5.14 shall apply. (Refer also to figure 18.)

5.16 Aircraft inventory master guide work package **(aircraft only) <inventorywp>**. Information shall be prepared on standard inventory procedures to allow determination of inventoriable items of installed and loose equipment authorized and required by the specific aircraft in performance of its mission. The inventory data described in 5.16.1 through 5.16.4 shall be included.

5.16.1 Introduction **<intro>**. A short explanation of the scope and purpose of the work package shall be prepared. Information pertaining to necessary steps to ensure the list is accurate, exact, and complete (e.g., research of authorized changes, Modification Work Orders (MWOs), additions/deletions for special mission requirements) shall be included. The introduction shall include a reference to DA PAM 738-751 for applicable forms and records. (Refer to figure 19.)

5.16.2 Security **<security>**. It shall be stated here that aircraft inventory records should be unclassified but that any classification of the contents, if necessary, should be in accordance with the existing security regulations. (Refer to figure 19.)

5.16.3 Inventoriable items **<inventoriable>**. The selection of inventoriable items to be listed is to be without regard to the agency, governmental or contractual, furnishing the items. (Refer to figure 19.)

a. Items to be listed are as follows.

    (1) Items essential to the execution of the designated mission of the aircraft, such as electronic, photographic, armament, special mission instruments, and safety and comfort equipment.

    (2) Loose equipment delivered with the aircraft and items subject to pilferage or readily converted to personal use.

    (3) Modification kits which are reissued or distributed to using organizations for installation and which are not immediately placed in use. These shall be recorded on the affected aircraft's DA Form 2408-17, Aircraft Inventory Record, and identified as loose equipment until modification is completed.

    (4) Equipment required for operation in a specific environment.

b. Items to be excluded are as follows.

    (1) Nonaccountable items coded as expendable in the applicable stock lists.

    (2) Personal issue or items furnished on unit allowance or other authority.

(3) Items or components considered as basic or integral parts of the airframe or basic aircraft, such as engines, propellers, wheels, and standard instruments.

(4) Equipment publications, checklists, and aircraft forms.

5.16.4 Periods of inventory **<prdinv>**. The following information shall be included.

"**PERIODS OF INVENTORY**

Inventoriable items shall be checked against the Aircraft Inventory Record, DA Form 2408-17, at the following periods:

1. Upon receipt.

2. Prior to transfer of the aircraft to another organization.

3. Upon placing aircraft in storage and upon removal from storage. Aircraft need not be inventoried while in storage.

4. Twelve months after last inventory." (Refer to figure 19.)

5.17 Storage of aircraft work package **(aircraft only) <storagewp>**. The data described in 5.17.1 and 5.17.2 shall be included.

5.17.1 General information for storage of aircraft work package **(aircraft only) <geninfo>**. The following text shall be prepared and included verbatim. (Refer to figure 20.)

"**STORAGE OF AIRCRAFT**

GENERAL INFORMATION

Components Involved in an Accident

Any component removed for reason of accident shall not be preserved, but shall be shipped in the same condition it was in after the accident.

Categories of Storage

1. Flyable storage — no time limit.

2. Short term (administrative storage) — 1 to 45 days.

3. Intermediate storage — 46 to 180 days."

5.17.2 Flyable storage **<flyable>**, short term storage **<short>**, and intermediate storage **<intermediate>**.

a. A general discussion shall be prepared for each category of aircraft storage, to include considerations for selection of the appropriate category (e.g., ground operation, motoring of engines, and other required maintenance for which personnel and materials are needed) and steps to be taken for care of the aircraft during exceptionally wet weather.

b. All essential information for each of these paragraphs shall be prepared to include all procedures for preparing the complete aircraft for storage and removal from storage, excluding any information on when or why the aircraft are stored. Each paragraph shall make reference to inspection documents and inspection procedures to be conducted before, during, and after storage. (Refer to figure 20.)

5.18 Weighing and loading (AVIM) work package **(aircraft only) <weightbalwp>**. This work package shall provide description, information, and procedures for aircraft weighing, balancing, and loading. The data described in 5.18.1 through 5.18.3 shall be included.

5.18.1 General information **<geninfo>**. The following text shall be prepared and included verbatim.

"WEIGHING AND LOADING AVIM

GENERAL INFORMATION

Scope

This work package contains description, information, and procedures for aircraft weighing and loading. This information replaces the Chart E (Loading Data and Special Weighing Instructions) placed in the individual aircraft weight and balance files by the aircraft manufacturer. Chart E in the aircraft file will no longer be required."

5.18.2 Weighing information. Instructions for preparing the aircraft, weighing the aircraft in the basic weight condition, performing calculations, and using and recording data on DD Form 365-1 (Basic Weight Checklist) and DD Form 365-2 (Aircraft Weighing Record) shall be included. (Refer to figure 21 for an example of DD Form 365-2.) Instructions shall include initial setup requirements, procedures for positioning the aircraft in the weighing area, and assembly of the aircraft weighing equipment. Illustrations shall be prepared to support the text, including a two view chart diagram. (Refer to figure 22.)

5.18.3 Loading information. Descriptions and instructions shall be prepared for aircraft loading, and computing weight and balance information. Sufficient information and data shall be provided so that an aviator, knowing the basic weight and moment of the aircraft, can compute any combination of weight and balance using the prescribed charts and forms. Reference shall be made to AR-93-3 (Aviation: General Provisions, Training, Standardization, and Resource Management), DA PAM 738-751 and TM 55-1500-342-23 for additional information governing weight and balance of aircraft, forms, and records. Data shall include fundamental principles of loading. An illustration of aircraft compartments and stations shall be included. Reference shall be made to DD Form 365-1 for a more complete listing of compartments and equipment that comprise the basic weight of the aircraft. Loading information shall include weight and balance characteristics, center of gravity limits, weight / balance and loading, and weight and moment tables for load items such as crew, fuel, cargo, and armament.

5.19 Depot mobilization requirements work package **(depot only) <mobilwp>**. When specified and provided by the contracting activity, this work package shall include the modifications, deletions, or additions to the preshop analysis or overhaul procedures required during mobilization. The data described in 5.19.1 and 5.19.2 shall be included.

5.19.1 Introduction for depot mobilization requirements work package **(depot only) <intro>**. The following text shall be prepared and included verbatim. (Refer to figure 23.)

"**DEPOT MOBILIZATION REQUIREMENTS**

INTRODUCTION

Scope

The purpose of this work package is to streamline and accelerate the overhaul process during the mobilization of the depot.

Explanation of Mobilization Requirements

The mobilization requirements include a list of instructions for modifying preshop analysis and/or overhaul procedures. The pertinent procedures to be modified are referred to by page and work package number, followed by the action to be taken."

5.19.2 Mobilization requirements **<mobilreq>**. A tabular list **(standard table)** of instructions shall be prepared for modifying preshop analysis and/or overhaul procedures. (Refer to figure 23 for an example.)

5.20 Component checklist work package **(depot only) <compchklistwp>**. A component checklist work package shall be prepared when required to support the preshop analysis procedures. (Refer to MIL-STD-40051-5.) This work package shall consist of the data described in 5.20.1 and 5.20.2.

5.20.1 Introduction **<intro>**. The checklist shall be preceded by a brief explanation of its use. (Refer to figure 24.)

5.20.2 Component checklist **<compchklist>**. The checklist shall contain the following data, as applicable (refer to figure 24).

a. Name/nomenclature of the equipment/item **<name>**.

b. Serial number **<serno>**.

c. Date received **<daterec>**.

d. Received from (identify unit) **<recfrom>**.

e. Component name **<compname>**.

f. NSN **<nsn>**.

g. Part number **<partno>**.

h. Quantity required **<qty>**.

i. Quantity received **<qtyrec>**.

j. Visual damage found **<damage>**.

5.21 QA requirements work package **(depot only) <qawp>**. This work package shall include the data described in 5.21.1 through 5.21.7.

5.21.1 Statement of responsibility <**responsibility**>. The following information shall be included.

"**STATEMENT OF RESPONSIBILITY**

The depot/contractor is responsible for complying with the quality assurance requirements contained in this work package and in accordance with DESCOM-R 702-1 (DESCOM Product Assurance Program). The commodity manager reserves the right to perform inspections or make changes that ensure the depot work being done meets the quality standards of the DMWR and preserves the inherent reliability of the item." (Refer to figure 25.)

5.21.2 Definitions <**def**>. Definitions shall be prepared for all QA terms extensively used in the Depot Maintenance Work Requirement (DMWR). (Refer to figure 25.)

5.21.3 Special requirements for inspection tools and equipment <**specialreq**>. Any special requirements for the maintenance and calibration of tools and test equipment used for QA inspections shall be listed.

5.21.4 Certification requirements <**certreq**>. Any certification or licensing requirements for processes, procedures, materials, equipment, or personnel skills shall be listed. The list shall include appropriate standards, specifications, regulations, or laws that apply. The list shall reference the text in the DMWR where there is a requirement for a soldering, welding, or magnetic particle inspection certification, radioactive substance, or test driver licenses. (Refer to figure 25.)

5.21.5 In-process inspections <**inprocess**>. The following statement shall be included.

"**IN-PROCESS INSPECTIONS**

In-process quality assurance inspections are contained throughout the overhaul procedures of this DMWR. These inspections are prefixed with the boldfaced letters "**QA**" to identify them, and they are the minimum inspections required. Additional quality assurance inspections may be established by the depot or the commodity manager." (Refer to figure 25.)

5.21.6 Acceptance inspections <**acceptance**>. The following statement shall be included.

"**ACCEPTANCE INSPECTIONS**

Items overhauled in accordance with this DMWR will be accepted based on the following criteria:

1. Conformance to quality of material requirements.

2. Conformance to all in-process quality assurance inspections.

3. Conformance to all final assembly testing requirements.

4. Conformance to the preservation, packaging, and marking requirements."

5.21.7 First article inspection <**first**>. When applicable, first article inspection/test shall be prepared for the DMWR in accordance with DESCOM-R 702-1.

5.22 Wiring diagrams work package <**wiringwp**>. This work package shall include wiring and cable provisions contained in the equipment/end item, including all systems or equipment which can be installed or

removed later (e.g., mission-related systems/equipment). Applicability of diagrams shall be explained in relation to equipment configuration. At a minimum, the wiring data described in 5.22.1 through 5.22.4 shall be included.

5.22.1 Introduction <**intro**>. Information shall be prepared to include the scope of the work package. (Refer to figure 26.) A statement shall be included explaining that wiring diagrams and essential wiring information are provided for all electrical and electronic systems and circuits.

5.22.2 Wire identification <**wireid**>. Identification of wires by number shall be explained. A list of circuit designators and a wire identification diagram shall be prepared. (Refer to figure 26.)

5.22.3 Abbreviations <**abbrev**>. A statement shall be prepared that abbreviations are in accordance with MIL-STD-12, except when the abbreviation stands for a marking actually found in the equipment. (Refer to figure 26.)

5.22.4 Wiring diagrams <**wiringdiag**>. Wiring diagrams shall be prepared for all electrical and electronic systems and circuits. (Refer to figure 26.)

5.23 Additional work packages <**genwp**>. Additional work packages may be prepared when the work packages previously described herein will not support the data/information to be presented.

6. **NOTES.**

The notes in section 6 of MIL-STD-40051 apply to this Part.

TM 3-6665-339-10

REFERENCES **0095 00**

SCOPE

This work package lists all field manuals, forms, technical manuals and miscellaneous publications referenced in this manual.

FIELD MANUALS

Basic Cold Weather Manual	FM 31-70
Desert Operations	FM 90-3
First Aid for Soldiers	FM 21-11
Mountain Operations	FM 90-6
NBC Decontamination Avoidance	FM 3-3
NBC Reconnaissance	FM 3-19
Northern Operations	FM 31-71
Operation and Maintenance of Ordnance Material in Cold Weather	FM 9-207
Vehicle Recovery Operations	FM 20-22

FORMS

Accident Identification Card	DD 518
Equipment Control Record	DA Form 2408-9
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Equipment Log Assembly (Records)	DA Form 2408
Hand Receipt	DA Form 2062
Motor Vehicle Accident Report	SF 91
Oil Analysis Log	DA Form 2408-20
Product Quality Deficiency Report	SF 368
Recommended Changes to Equipment Technical Publications	DA Form 2028-2
Recommended Changes to Publications and Blank Forms	DA Form 2028
Uncorrected Fault Record	DA Form 2408-14
Weapon Record Data	DA Form 2408-4

TECHNICAL MANUALS

Ammunition, General	TM 9-1300-200
Destruction of TACOM Equipment	TM 750-244-6
Hand Set Microphone	TM 11-5695-286-14

0095 00-1

FIGURE 1. Example of a references work package.

TM X-XXXX-XXX-XX

MAINTENANCE ALLOCATION CHART (MAC) **0133 00**

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit - includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support - includes an F subcolumn.

General Support - includes an H subcolumn.

Depot - includes a D subcolumn.

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

STANDARD FORMAT

0133 00-1

FIGURE 2. Example of a standard MAC work package, introduction.

TM X-XXXX-XXX-XX

MAINTENANCE ALLOCATION CHART (MAC) **0133 00**

INTRODUCTION

Aviation Maintenance Allocation Chart

This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Aviation Maintenance concept for Army aviation. These maintenance levels - Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM), and Depot Maintenance - are depicted in the MAC as:

AVUM - corresponds to an O code in the Repair Parts and Special Tools List (RPSTL).

AVIM - corresponds to an F code in the Repair Parts and Special Tools List (RPSTL).

DEPOT - corresponds to a D code in the Repair Parts and Special Tools List (RPSTL).

The maintenance to be performed below depot and in the field is described as follows:

Aviation Unit Maintenance (AVUM). AVUM activities will be staffed and equipped to perform high frequency "On-Aircraft" maintenance tasks required to retain or return aircraft systems to a serviceable condition. The maintenance capability of the AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of ground support equipment (GSE), facilities required, authorized manning strength, and critical skills available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources, and air mobility requirements.)

THREE-LEVEL FOR ARMY AVIATION FORMAT

0133 00-1

FIGURE 3. Example of an aviation MAC work package, introduction.

MAINTENANCE ALLOCATION CHART FOR TSEC/ST-34

Table 1. MAC for TSEC/ST-34.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
00	TSEC/ST-34	Inspect	0.1						A
		Service	0.2						B
		Replace	0.4					1	C,D
		Test	0.3						E
		Repair			1.5			1-2	F
		Repair				2.0		1-5	G,H
		Repair					2.0	1-9	I
		Overhaul					16.0	1-9	J
01	POWER UNIT, STP-34	Inspect	0.1						A
		Test	0.3						E
		Repair			1.8			1-2	F
		Repair				2.0		1-5	G,J
		Repair					2.0	1-9	H
0101	PRINTED CIRCUIT BOARDS, STP-34								
010101	E-EB0/1	Inspect			0.1				A
		Test			0.5			1,2	E
		Test					1.0	1-3,6-8	I
		Replace			0.5			1	
		Repair					2.0	1-4,6-8	G
010102	SWITCHING ASSEMBLY	Inspect			0.1			1	A
		Replace			0.5			1	
		Test					1.0	1-3,6-8	
		Repair					2.0	1-4,6-8	H
02	LOGIC UNIT, STB-34	Inspect	0.1						A
		Test	0.5						E
		Repair			1.0			1-2	F
		Repair				2.0		1-5	G,J
0201	PRINTED CIRCUIT BOARDS, STB-34	Inspect			1.0				A
		Test			0.2				E
		Test				1.0		1-3,5	J
		Replace			0.3			1	
		Repair				2.0		2-5	G

FIGURE 4. Example of a standard MAC.

MAINTENANCE ALLOCATION CHART (AVIATION) FOR T-XXX TURBINE ENGINE

Table 1. MAC for T-XXX Turbine Engine.

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL AVUM (O)	AVIM (F)	DEPOT (D)	(5) TOOLS & EQUIP REF CODE	(6) REMARKS CODE
04	POWER PLANT						
0401	ENGINE, TURBINE	Inspect	--			1	A
		Test	--				B
		Test		-- (3)			
		Test			--		
		Service	0.2				C
		Install	--				
		Replace	--				
		Repair	--				
		Repair		-- (4)			A
		Overhaul			--		
040101	EXTERNAL LINES & HOSES	Inspect	--			3	D
		Test		--			
		Install	--				
		Replace	--				
		Repair		--			
0402	COMPRESSOR SECTION (COLD SECTION MODULE)	Inspect	0.1				E
		Inspect		0.2			
		Test		--			
		Service	0.2				
		Repair	0.4				
		Repair		0.6			
		Overhaul			--		

FIGURE 5. Example of an aviation MAC.

TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR TSEC/ST-34

Table 2. Tools and Test Equipment for TSEC/ST-34.

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	H	Automatic test system ST-51	5810-00-089-4599	TSEC/ST-51
2	F	Multimeter, digital	6625-01-139-2512	AN/PSM-45
3	D	Multimeter, digital	6625-01-145-2430	AN/USM 486
4	H	Oscilliscope	6625-01-187-7847	AN/USM-488
5	D	Power supply (0-35 VDC 2.4A)	6130-00-006-5224	HP 6434B86
6	D	Power supply tester	N/A	ON502427
7	H	Repair and soldering center (page)	4940-01-031-4541	PRC-350C/equip
8	F	Tool, kit, electronic equipment	5180-00-610-8177	TK-105/6

REMARKS FOR TSEC/ST-34

Table 3. Remarks for TSEC/ST-34.

REMARKS CODE	REMARKS
A	External.
B	Preventive maintenance checks and services (PMCS).
C	Replace rack installed unit, 0.4 hrs.
D	Bench top use only, 0.1 hrs.
E	Self-test.
F	Repair by PMA and authorized component replacement only.
G	Complete unit and subassembly repair (except STP-34 switching assembly and E-EBO/1).
H	Complete unit and subassembly repair.
I	In compliance with TSEC/ST-34 CIDOS.
J	Function performed by specialized repair activity (SRA). (Theater COMSEC Logistics Support Center-Europe or Lexington-Blue Grass Army Depot)

FIGURE 6. Example of standard MAC tools and test equipment and remarks tables.

TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR T-XXX TURBINE ENGINE

Table 2. Tools and Test Equipment for T-XXX Turbine Engine.

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	AVUM/AVIM	Sling, aircraft maintenance	1730-00-903-5019	LTCT 773
2	AVUM/AVIM	Wrench, crowfoot	5120-00-034-6193	LTCT 4810
3	AVIM	Wrench, socket	5120-00-875-2588	LTCT 393
4	AVIM	Wrench, spanner	5120-00-886-1794	LTCT 9263

REMARKS FOR T-XXX TURBINE ENGINE

Table 3. Remarks for T-XXX Turbine Engine.

REMARKS CODE	REMARKS
A	Diagnostic inspection using borescope.
B	Functional test at AVUM - engine in airframe.
C	Functional test at AVIM - engine in METS.
D	Repair at AVIM includes the engine assembly, individual line replacement units (LRU) (accessories) and modules.
E	Replace seal.
F	Repair limited to replacement of rotor assembly, stator, stage 1 nozzle, face type seal, and combustion liner.
G	Repair limited to replacement of external lines, hoses, and line replacement units (LRU) (accessories).
H	Replacement of carbon seal.
I	Reset button.
J	Water wash.
K	Visible inspection without detailed disassembly.
L	All repair and replacement of parts performed by AVUM is limited to authorized items listed in TM (cite specific TM-20P or -23P).

FIGURE 7. Example of an aviation MAC tools and test equipment and remarks tables.

TM 9-2350-314-10

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS **0121 00**

INTRODUCTION

Scope

This work package lists COEI and BII for the M198 howitzer to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the M198 howitzer. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the M198 howitzer in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the M198 howitzer during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1), Illus Number, gives you the number of the item illustrated.

Column (2), National Stock Number, identifies the stock number of the item to be used for requisitioning purposes.

Column (3), Description, CAGEC, and Part Number, identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the CAGEC (commercial and Government entity code) (in parentheses) and the part number.

Column (4), Usable on Code, gives you a code if the item you need is not the same for different models of equipment. These codes are identified below:

Code	Used on
PAA	Model XXX
PAB	Model XXXX
PAC	Model XXXXX

Column (5), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column (2).

Column (6), Qty Rqr, indicates the quantity required.

0121 00-1

FIGURE 8. Example of a components of end item and basic issue items lists work package.

TM 9-2350-314-10

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued 0121 00

COMPONENTS OF END ITEM (COEI) LIST

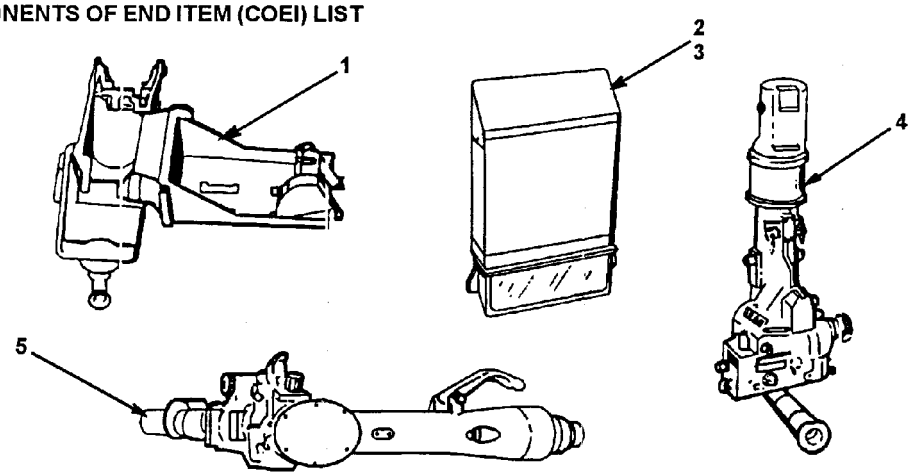


Table 1. Components of End Item List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USUABLE ON CODE	(5) U/M	(6) QTY RQR
1	1005-00-706-8880	MOUNT, MACHINE GUN: cal. .50 (in mount on cupola) (19204) 7068880	PAA	EA	1
2	1240-00-344-4643	PERISCOPE: M27 (chief of section) (stowage box cab wall) (19200) 7633132	PAA	EA	1
3	1240-00-509-2743	PERISCOPE: M45 (driver's) (stowage box driver's compartment) (19200) 8213430	PAA	EA	3
4	1240-00-864-2930	TELESCOPE, PANORAMIC M117 (in mount M145 or telescope box) (19200) 7660400	PAA	EA	1
5	1240-00-491-9676	TELESCOPE, ELBOW: M118CA1 (in mount M146) (19200) 10559855	PAB	EA	1

0121 00-2

FIGURE 8. Example of a components of end item and basic issue items lists work package - Continued.

TM 9-2350-314-10

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued 0121 00

BASIC ISSUE ITEMS (BII) LIST

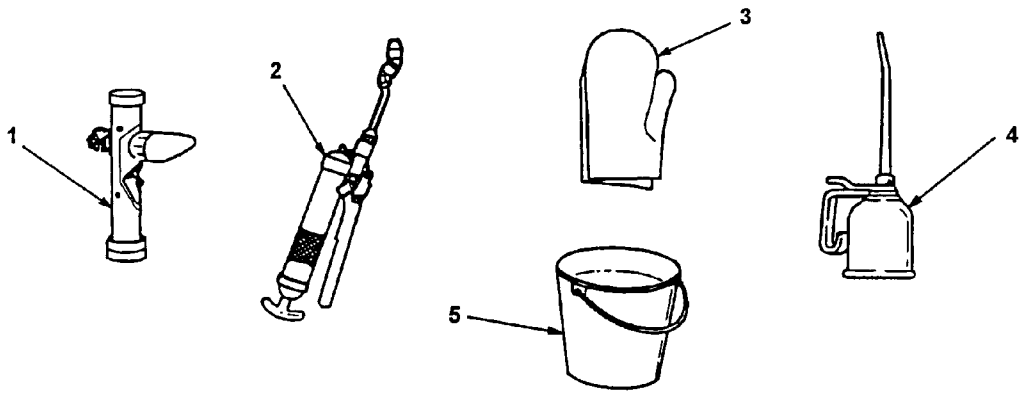


Table 2. Basic Issue Items List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USUABLE ON CODE	(5) U/M	(6) QTY RQR
1	1290-00-535-7629	LIGHT, AIMING POST: M14 (19200) 7197188	PAA	EA	2
2	4930-00-766-3545	LUBRICATING GUN, HAND: high pressure (in tool bag) (36251) 102758	PAA	EA	1
3	8415-00-266-8843	MITTENS, CLOTH: (pair) M1942 (in oddment tray) (19207) 11655982	PAA	PR	2
4	4930-00-262-8868	OILER, HAND: steel, pump type, 1 pt, spout 9 lg (in left cab door stowage box) (72798) 328	PAA	EA	1
5	7240-00-160-0455	PAIL, UTILITY: 14-qt capacity (on vehicle floor) (81348) RRP35	PAA	EA	1

0121 00-7

FIGURE 8. Example of a components of end item and basic issue items lists work package - Continued.

TM 3-6665-339-10

ADDITIONAL AUTHORIZATION LIST (AAL) 5120 00

INTRODUCTION

Scope
This work package lists additional items you are authorized for the support of the NBCRS FOX M93A1.

General
This list identifies items that do not have to accompany the NBCRS FOX M93A1 and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanations of Columns in the AAL
Column (1), National Stock Number, identifies the stock number of the item to be used for requisitioning purposes.
Column (2), Description, CAGEC, and Part Number, identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

Column (3), Usable On Code, when applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column (1).
Column (5), Qty Recm, indicates the quantity recommended.

ADDITIONAL AUTHORIZED LIST ITEMS

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
	MTOE AUTHORIZED ITEMS			
6665-01-105-5623	ALARM, CHEMICAL AGENT (19200) 8762101		EA	1
1240-01-207-5787	BINOCULARS, MOD, CON M22 (19200) 9370122		EA	1
2590-01-148-7961	CABLE KIT, SPECIAL PURPOSE (19200) 223592-2000		EA	1
1080-00-623-7295	CAMOUFLAGE SCREEN WOODLAND/DST POLES (34623) 11655722		EA	1
1080-00-103-1246	CAMOUFLAGE SCREEN WOODLAND RAD SCT (34623) 11655720		EA	1
6665-01-199-4153	CHEMICAL AGENT MONITOR (CAM) (34623) 11645620		EA	1

5120 00-1

FIGURE 9. Example of an additional authorization list work package.

TM 3-6665-339-10

EXPENDABLE AND DURABLE ITEMS LIST 5230 00

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the NBCRS FOX M93A1. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanations of Columns in the Expendable / Durable Items List

Column (1) - Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., “Use lubricating oil (Item 25, WP 5230 00).”).

Column (2) - Level. This column includes the lowest level of maintenance that requires the listed item (C =Operator/Crew).

Column (3) - National Stock Number. This is the NSN assigned to the item which you can use to requisition it.

Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGE), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) - Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/M
1	C	6810-00-201-0906	Alcohol, denatured, Grade III, 16 ounce bottle (81348) O-E-760	BT
2	C	8030-01-138-1666	Antiseize Compound, 250-gram tube (81349) MIL-T-5544	TU
3	C	6515-00-059-5235	Applicator, disposable, package of 1000 (58536) A-A-30016	PK
4	C	8020-00-224-8024	Brush, artist, MTL ferrule, round, tapered point, Type I, camel hair (81348) H-B-118	EA
5	C	9150-01-054--6453	Cleaner, Lubricant & Preservation (CLP), 1-pint bottle with sprayer (81349) MIL-L-63640	PT
6	C	6850-00-926-2275	Cleaning Compound (81348) O-C-1901	PT

5230 00-1

FIGURE 10. Example of an expendable and durable items list work package.

TM X-XXXX-XXX-XX

STOWAGE AND DECAL/DATA PLATE GUIDE **0113 00**

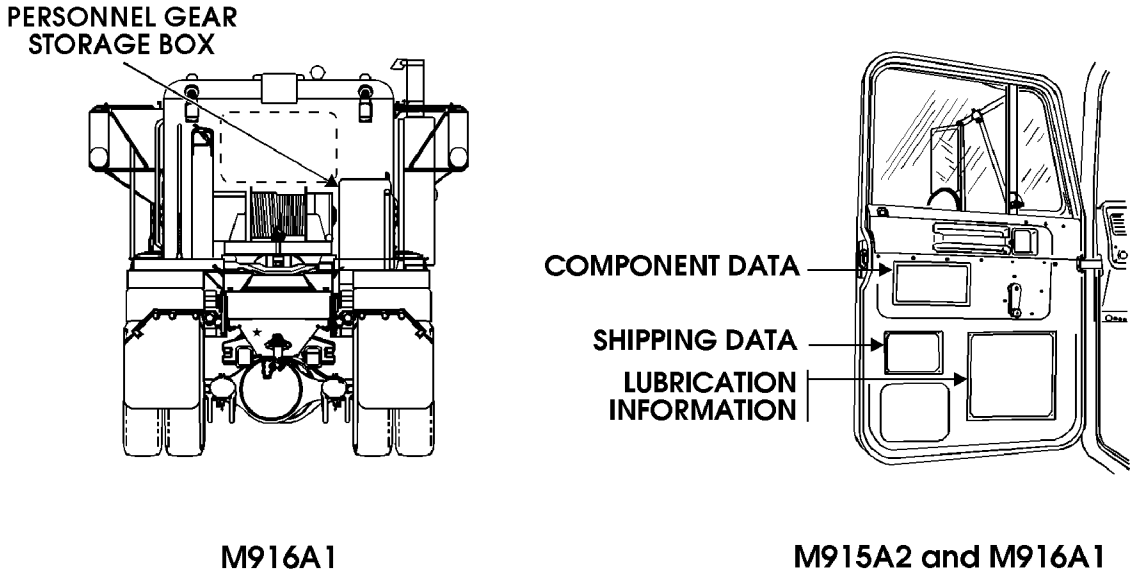
INTRODUCTION

Scope

This work package shows stowage location for equipment, metal signs, and stencils that must be in place on the M915A2 and M916A1.

General

The illustrations on the following pages show stowage locations for Basic Issue Items (BII), tire chains, and personnel gear. Also shown are locations for metal signs and stencils that contain cautions or information required to operate the vehicle safely.



0113 00-1

FIGURE 11. Example of a stowage and decal/data plate guide work package.

TM 3-6665-339-10

ON - VEHICLE EQUIPMENT LOADING PLAN 0532 00

INTRODUCTION

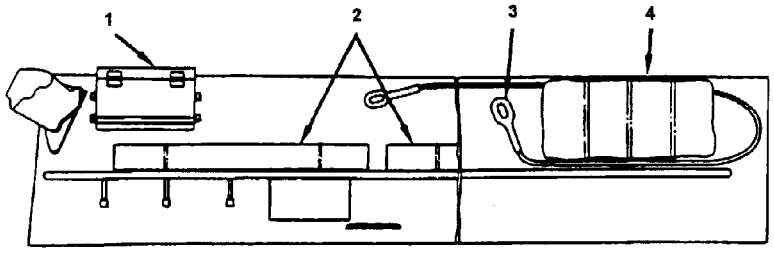
Scope

This work package lists user equipment and its location on the NBCRS FOX M93A1.

General

The following illustrations and tables will assist you in locating user equipment on the NBCRS FOX M93A1.

EXTERNAL LEFT SIDE VIEW



Item No.	Item Name
1	Stowage Box Spare Smoke Grenades (12)
2	Camouflage Screen Equipment
3	Tow Cables (2)
4	Camouflage Screens (2)

0532 00-1

FIGURE 12. Example of tactical on-vehicle equipment loading plan work package.

TM 9-1250-252-20

TOOL IDENTIFICATION LIST **0105 00**

INTRODUCTION

Scope

This work package lists all common tools and supplements and special tools/fixtures needed to maintain the MICLIC.

Explanation of Columns in the Tool Identification List

Column (1) - Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., "Extractor (item 32, WP 0105 00)").

Column (2) - Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., "Gage, belt tension").

Column (3) - National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) - Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

Column (5) - Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this work package.

TOOL IDENTIFICATION LIST

Table 1. Tool Identification List.

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
1	Adapter, socket wrench, 1/2 inch-3/4 inch	5120-00-114-5207	11655788-3	TM 9-2350-252-20P-1
2	Adapter, socket wrench, 3/4 inch-1 inch	5120-00-227-8104		SC 4910-95-CL-A72
3	Adapter, socket wrench, 3/8 inch-1/2 inch	5120-00-240-8703	EX503B	TM 9-2350-252-20P-1
4	Adapter, test	4910-01-138-9334	11629693-1	TM 9-1250-252-20P-1
5	Adapter, test	4910-01-138-9335	11629693-2	TM 9-1250-252-20P-1
6	Adapter, torque wrench, 1/2 inch drive, 1/2 inch	5120-00-399-1157	2588756	TM 9-2350-252-20P-1
7	Adapter, torque wrench, 1/2 inch drive, 3/4 inch	5120-00-399-1154	2588757	TM 9-2350-252-20P-1
8	Adapter, torque wrench, 1/2 inch drive, 5/16 inch	5120-01-115-1891	12298105-1	TM 9-2350-252-20P-1
9	Adapter, torque wrench, 1/2 inch drive, 15/16 inch	5120-00-215-8200	11663358-2	TM 9-2350-252-20P-1
10	Adjusting tool, belt	4910-01-128-2670	3375058	TM 9-2350-252-20P-1
11	Automotive electrical tool kit	5180-00-422-8594		SC 4910-95-CL-A74
12	Bit, screwdriver, 1/4 inch drive	5120-00-316-9228	TMC105A	TM 9-2350-252-20P-1

0105 00-1

FIGURE 13. Example of a tool identification list work package.

TM 1-1520-238-23

ILLUSTRATED LIST OF MANUFACTURED ITEMS **0110 00**

INTRODUCTION

Scope

This work package includes complete instructions for making items authorized to be manufactured or fabricated at the direct support maintenance level.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers fabrication criteria.

Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. Refer to the RPSTL work package 0115 00 for further information on all manufactured items. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

INDEX OF MANUFACTURED ITEMS

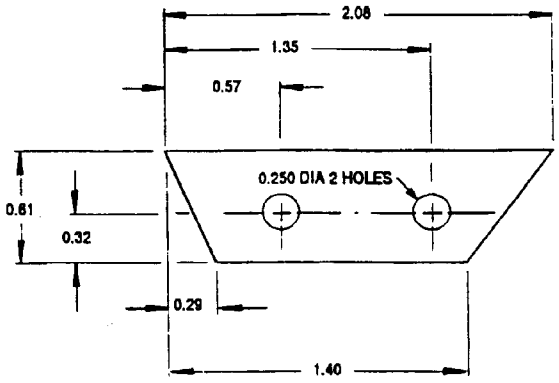
Part Number	Figure Number
342-83028-1	1
342-83028-3	2

0110 00-1

FIGURE 14. Example of an illustrated list of manufactured items work package.

TM 1-1520-238-23

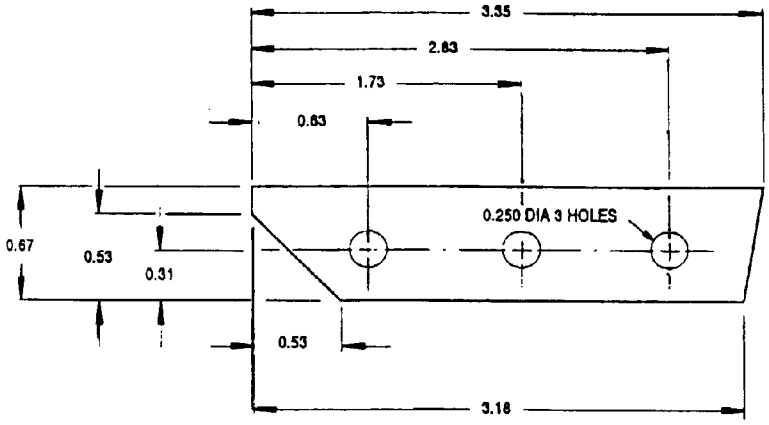
ILLUSTRATED LIST OF MANUFACTURED ITEMS - Continued 0110 00



NOTES:

- SHIM, BLADE - MAKE FROM AL-ALY SHEET 2024-T3, 0.016 THICK, QQ-A-250/5 , NSN 6635-00-232-0543
- FINISH - CHEMICALLY FILM TREAT PER MIL-C-5541 CLASS 1A
- ALL DIMENISIONS ARE IN INCHES

Figure 1. Shim, Blade PN 366-83019-3



NOTES:

- SHIM, BLADE - MAKE FROM AL- ALY SHEET 2024 - T3, 0.016 THICK, QQ-A-250/5 , NSN 6635-00-232-0543
- FINISH - CHEMICALLY FILM TREAT PER MIL-C-5541 CLASS 1A
- ALL DIMENISIONS ARE IN INCHES

Figure 2. Shim, Blade PN 366-83019-5

0110 00-2

FIGURE 14. Example of an illustrated list of manufactured items work package - Continued.

TM 9-2350-XXX-XX

TORQUE LIMITS 0731 00

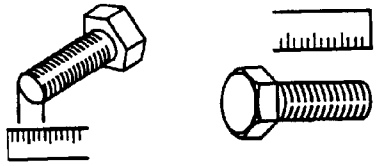
INTRODUCTION

Scope

This work package contains the torque standards for specific types and sizes of hardware. It defines the different types of bolts by grade.

TORQUE TABLES

How To Use Torque Tables



1. Measure the diameter of the screw you are installing.
2. Count the number of threads per inch or use a pitch grade.
3. Under the heading SIZE, look down the left-hand column until you find the diameter of the screw you are installing. (There will usually be two lines beginning with the same size.)
4. In the second column under SIZE, find the numbers of threads per inch that matches the number of threads you counted in step 2. (Not required for metric screws.)

STANDARD METRIC

CAPSCREW HEAD MARKINGS

NOTE

Manufacturer's marks may vary. Standard are all SAE Grade 5 (3- Line). Metric screws are of three grades: 8.8, 10.9, and 12.9. Grades and manufacturer's marks appear on the screw head.

5. To find the grade screw you are installing, match the markings on the head to the correct picture of CAPSCREW HEAD MARKINGS in the illustration preceding the torque table.

0731 00-1

FIGURE 15. Example of a torque limits work package.

TM X-XXXX-XXX-XX

MANDATORY REPLACEMENT PARTS **0115 00**

INTRODUCTION

Scope

This work package includes a list of all mandatory replacement parts referenced in the task initial setups and procedures. These are items that must be replaced during maintenance whether they have failed or not. This includes items based on usage intervals such as miles, time, rounds fired, etc.

MANDATORY REPLACEMENT PARTS LIST

Table 1. Mandatory Replacment Parts List Semiannual (1500 Mile).

ITEM NO.	PART NUMBER	NSN	NOMENCLATURE	QTY
1	HC7500Y144	4330-01-217-8184	FILTER ELEMENT, FLUID (M977/M985 ONLY)	1
2	HD223	2940-01-132-4842	FILTER ELEMENT, FLUID	1
3	MS35338-46	5310-00-637-9541	WASHER, LOCK (ALL EXCEPT M984A1)	2
4	MS35802-3	2940-00-580-6283	FILTER ELEMENT, FLUID	1
5	S-268-1	5306-01-084-5390	BOLT, MACHINE (ALL EXCEPT M984A1)	2
6	WA110	5310-01-061-5302	WASHER, LOCK	4
7	10232C	5330-01-168-8707	GASKET (M978 ONLY)	1
8	11007	5330-01-046-1990	GASKET	1
9	1112310	5330-01-225-4803	PACKING, PREFORMED (M977/M985/M984A1 ONLY)	1
10	1124510	5330-01-143-0135	PACKING, PREFORMED (M977/M985/M984A1 ONLY)	1
11	1128242	5330-01-145-1112	PACKING, PREFORMED (M977/M985/M984A1 ONLY)	1
12	11350	5330-01-147-6003	PACKING, PREFORMED	1
13	1199478	5330-01-234-7625	GASKET	1
14	1199738	4330-01-192-7664	SCREEN, BY-PASS FILTER (M977/M985/M984A1 ONLY)	1
15	1300766	4330-01-232-8305	FILTER ELEMENT, FLUID (M984A1 ONLY)	1
16	1300767	4330-01-192-8832	FILTER ELEMENT, FLUID (M977/M985/M984A1 ONLY)	1
17	2020SM	4330-01-046-3399	FILTER ELEMENT, FLUID WASHER,	1
18	2463HX	5310-01-054-5896	FLAT (ALL EXCEPT M984A1)	2
19	25010778	2910-01-022-8183	FILTER ELEMENT, FLUID	1
20	4-1/2IN77/	5330-01-163-5849	GASKET (M978 ONLY)	2

FIGURE 16. Example of a mandatory replacement parts work package.

TM X-XXXX-XXX-XX

AMMUNITION MARKING INFORMATION **0108 00**

GENERAL

1. Ammunition for the M199 cannon is the separate loading type. The loading of each complete round into the cannon requires three separate operations: loading the fuzed projectile, the propelling charge, and the primer.

2. These components are shipped separately; therefore, the cannon crew must know how to store, unpack, inspect, prepare, and load each complete round every time the weapon is fired.

   a. The chief of section supervises the loading and the preparation duties performed by cannoneers.

   b. The chief of section must also see that the cannoneers and driver are cross-trained in the specific duties of the care, handling, unpacking, inspection, preparation, and loading of the ammunition components in order to sustain a 24-hour operation or to operate with a reduced crew.

3. It is planned that future ammo for all new 155mm weapons will be interchangeable. This will enable projectiles and propelling changes of one NATO nation to be fired from the 155mm weapons of all others. Current items of interchangeability are contained in Chapter 5.

4. For maintenance of ammunition, see TM 9-1300-251-20.

WARNING

Until safety and reliability testing is completed, the use of ammo other than prescribed in this manual is prohibited.

5. Refer to Work Package 0011 00 for information about the Loose Projectile Restraint System (LPRS). The LPRS is a divider rack for securing loose unfuzed projectiles for transportation in a field artillery companion vehicle.

0108 00-1

FIGURE 17. Example of an ammunition marking information work package.

TM X-XXXX-XXX-XX

AMMUNITION MARKING INFORMATION - Continued **0108 00**

Table 1. Authorized Projectile Fuze Combinations for 8-Inch Howitzer, SP, M110A2 Cannon M201A1.

TYPE AND MODEL NUMBER OF PROJECTILE	FUZE										
	PD		MT		MTSQ			PROX(VT)		ET	
	M739 SERIES	M557	M572	M565	M564	M557 SERIES	M582 SERIES	M728	M732	M762	M767
Agent GB, VX, M426	X	X	X					X[2]	X[2]		
HE, M106 (Shallow Cavity)	X	X	X		X[3]		X		X		X
HE, M106 (Deep Cavity)	X	X	X		X[3]		X	X[4]	X		X
HE, M404 ICM				X		X				X	
HE, M509A1 ICM						X				X	
HERA, M650 (Rocket-On)	X	X	X								X
HERA M650[1] (Rocket-Off)	X	X	X		X[3]		X		X		X

WARNING

[1] Do not fire the M650 projectile if the obturating band is missing or broken. If the band is displaced and can be repositioned and remain in the groove, the projectile can be fired.

NOTE

[2] M728 and M732 fired only with "VX" projectile and only in combat emergency.

[3] Fuze, MTSQ, M564 is restricted from firing with zone 9 M188A1 propelling charge.

[4] Authorized, requires removal of supplementary charge.

FIGURE 17. Example of an ammunition marking information work package - Continued.

TM X-XXXX-XXX-XX

FOREIGN AMMUNITION (NATO) **0101 00**

GENERAL

1. Agreements between the United States and NATO allies have established the interoperability of weapon systems and ammunition of the nations. The agreements enable the safe and effective firing of major types of ammunition of the same size from the same compatible size and type weapon of the NATO armies.

2. The following pages cover only authorized German (GE), United Kingdom (UK), Canadian (CA), Netherlands (NL), French (FR), Norwegian (NO), Italian (IT), Danish (DA), Greek (GR), or Belgian (BE) 155mm components. If a munitions item has not yet been authorized, it is because it has not yet been determined to be safe to fire or it has been determined that the munitions item cannot be safely fired from the US weapon system.

WARNING

Only under emergency combat conditions will zone 1 of the M3A1 and DM62 propelling charge be fired from the M199 cannon tube of the M198 howitzer weapon system.

Do not mix US, GE, UK, CA, NL, FR, NO, IT, DA, GR, or BE components (i.e., projectile, propelling charge, flash reducer, fuze). Fire only components from one nation, except GE primer DM9141. GE must use DM191A1 when firing US, GE, UK, CA, NL, FR, NO, IT, DA, GR, or BE 155mm munitions. Mixing may cause injury to personnel.

NOTE

At the conclusion of any training excercise, ammunition drawn from a NATO nation and not fired should be returned to the troops of the NATO nation from whom it was obtained.

AUTHORIZED PROJECTILES

The following GE munitions are authorized for use in M198 howitzers:

Projectile	155mm, HE, DM21 (TNT-loaded only)
Charge, propelling	Green bag, DM62, zones 1-5
Charge, propelling	White bag, DM42B1, zones 3-7
Fuze	Point-detonating, DM21 1
Primer	Use only US M82 primer. Do not use GE DM191A1 primer.

0101 00-1

FIGURE 18. Example of a foreign ammunition (NATO) work package.

TM X-XXXX-XXX-XX

FOREIGN AMMUNITION (NATO) - Continued **0101 00**

AUTHORIZED PROJECTILES - Continued

The following GE munitions are authorized for use in M198 howitzers:

Projectile	155mm, HE, M107 (TNT-loaded only)
Charge, propelling	Green bag, M3A1, zones 1-5
Charge, propelling	White bag, M4A2, zones 3-7
Fuze	Point-detonating, M557, L85A2
Primer	M82

NOTE

M3 and M4A1 propelling charges do not have flash reducers.

The following CA munitions are authorized for use in M198 howitzers:

Projectile	155mm, HE, M107
Charge, propelling	M3, M3A1, M4A1, M4A2
Fuze	Point-detonating, M5S7, M564 proximity, M514A1
Primer	M82

NOTE

The M107C1 projectile, M3C1 and M4C3 propelling charges, M557C1 fuze, and M82C1 primer are NL manufacture.

The following NL munitions are authorized for use in M198 howitzers:

Projectile	155mm, HE, M107, M107C1 (TNT-loaded only)
Charge, propelling	M3C1, M4C3, M4A1
Fuze	Point-detonating, M557, M557C1
Primer	M82, M82C1

The following FR munitions are authorized for use in M198 howitzers:

Projectile	155mm, HE, M107
Charge, propelling	Green bag, M3, zones 1-5
Charge, propelling	White bag, M4A1, zones 5-7
Fuze	Point-detonating, M557
Primer	Use US M82 only, not MK2A4.

0101 00-2

18. Example of a foreign ammunition (NATO) work package - Continued.

TM 1-1520-238-23-1

AIRCRAFT INVENTORY MASTER GUIDE 0347 00

INTRODUCTION

Scope

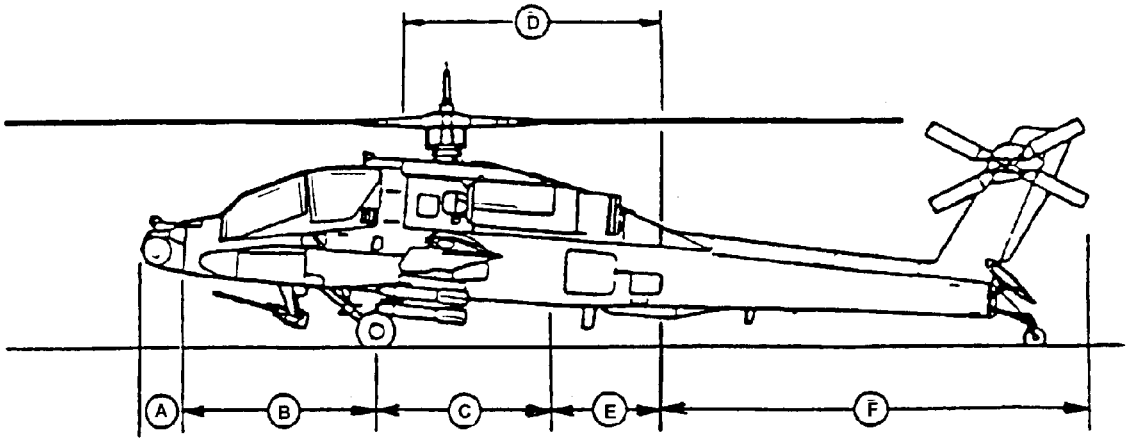
This work package includes a listing of all inventoriable items of installed and loose equipment authorized and required by the aircraft in performance of its mission. Refer to DA PAM 738-751 for applicable forms and records to use in performing the inventory.

SECURITY

Aircraft inventory records should be unclassified, but any classification of the contents, if necessary, should be in accordance with the existing security regulations.

INVENTORIABLE ITEMS

Modification kits which are reissued or distributed to using organizations for installation, and which are not immediately placed in use, shall be recorded on the aircraft's DA Form-2408-17, Aircraft Inventory Record, and identified as loose equipment until modification is complete. Refer to table 1 for a list of inventoriable items for the aircraft.



0347 00-1

FIGURE 19. Example of an aircraft inventory master guide work package.

TM 1-1520-238-23-1

AIRCRAFT INVENTORY MASTER GUIDE - Continued 0347 00

INVENTORIABLE ITEMS - Continued

Table 1. Inventoriable Items.

NOMENCLATURE	PART NUMBER	NSN	QTY RQD
SECTION A - NOSE ELECTRONICS			
TADS Turret	130760000	1270-01-188-4138	1
PNVS Turret and Faring	130900000	1090-01-169-9415	1
Multiplex Terminal - Type 3	4032298-956	7025-01-210-7768	1
Signal Data Converter - Eng.	7-311C20019	6620-01-160-3518	1
Radar Jammer Transmit Antenna	SM-A-919685-2		1
Radar Warning Antenna	AS2891/APR-39V	1020-00-024-7608	2
Power Transformer	7-219510089	5950-01-186-8032	1
SECTION B - RIGHT FORWARD AVIONICS BAY			
Gun Control Box	7-317222500-603	1005-01-211-4165	1
Multiplex Terminal - Type 1	4032297-955	7025-01-211-0130	1
Turret Control Box	7-317222004	5930-01-239-2391	1
PNVS Electronic Box	13080274	4931-01-169-9369	1
Display Electronics - IHADSS	7-319430041	1270-01-183-0518	1
Sight Electronic Unit - IHADSS	7-319430031	1270-01-183-0519	1
Fire Control Computer	7-31900001	1430-01-211-0023	1
Remote Electronic Unit	7-317141001	1270-01-187-5778	1
Portable Fire Bottle	7-211180002-501	4210-00-555-8837	1
Electromagnet Relay	7-211B12033	5945-01-160-5639	1

PERIODS OF INVENTORY

Inventoriable items shall be checked against the Aircraft Inventory Record, DA Form 2408-17, at the following periods:

1. Upon receipt.
2. Prior to transfer of the aircraft to another organization.
3. Upon placing aircraft in storage and upon removal from storage. Aircraft need not be inventoried while in storage.
4. Twelve months after last inventory.

0347 00-2

FIGURE 19. Example of an aircraft inventory master guide work package - Continued.

TM 1-1520-238-23

STORAGE OF AIRCRAFT **2100 00**

THIS WORK PACKAGE COVERS:

General Information, Flyable Storage

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools

Aircraft mechanic's tool kit (item 376, WP 2653 00)
Light duty laboratory apron (item 27, WP 2652 00)
Chemical protective gloves (item 154, WP 2652 00)
Adjustable air filtering respirator (item 262, WP 2652 00)

Materials/Parts:

Barrier material (item 32, WP 1846 00)
Cloth (item 52, WP 1846 00)
Dry cleaning solvent (item 74, WP 1846 00)
Lubricating oil (item 117, WP 1846 00)
Tape (item 207, WP 1846 00)

Personnel Required:

Attack Helicopter Repairer, 67R (1)
Attack Helicopter Repairer/Technical Inspector, 67R3F (1)
Maintenance Test Pilot, 152FG (1)

References:

TM 1-1500-204-23
TM 1-1520-238-PMS
TM 9-1090-208-23
TM 11-6140-203-14-1
TM 11-6140-203-14-2
TM 55-1500-344-23
TM 55-1520-238-10
TM 55-2840-248-23

Equipment Conditions:

Helicopter safed (WP 1765 00)
Engine 10-hour/14 day inspection performed (TM 55-2840-248-23)
10-hour/14 day inspection performed (TM 1-1520-238-PMS)

STORAGE OF AIRCRAFT

GENERAL INFORMATION

Components Involved in an Accident

Any component removed for reason of accident shall not be preserved, but shall be shipped in the same condition it was in after the accident.

Categories of Storage

1. Flyable storage - no time limit.
2. Short term (administrative storage) - 1 to 45 days.
3. Intermediate storage - 46 to 180 days.

NOTE

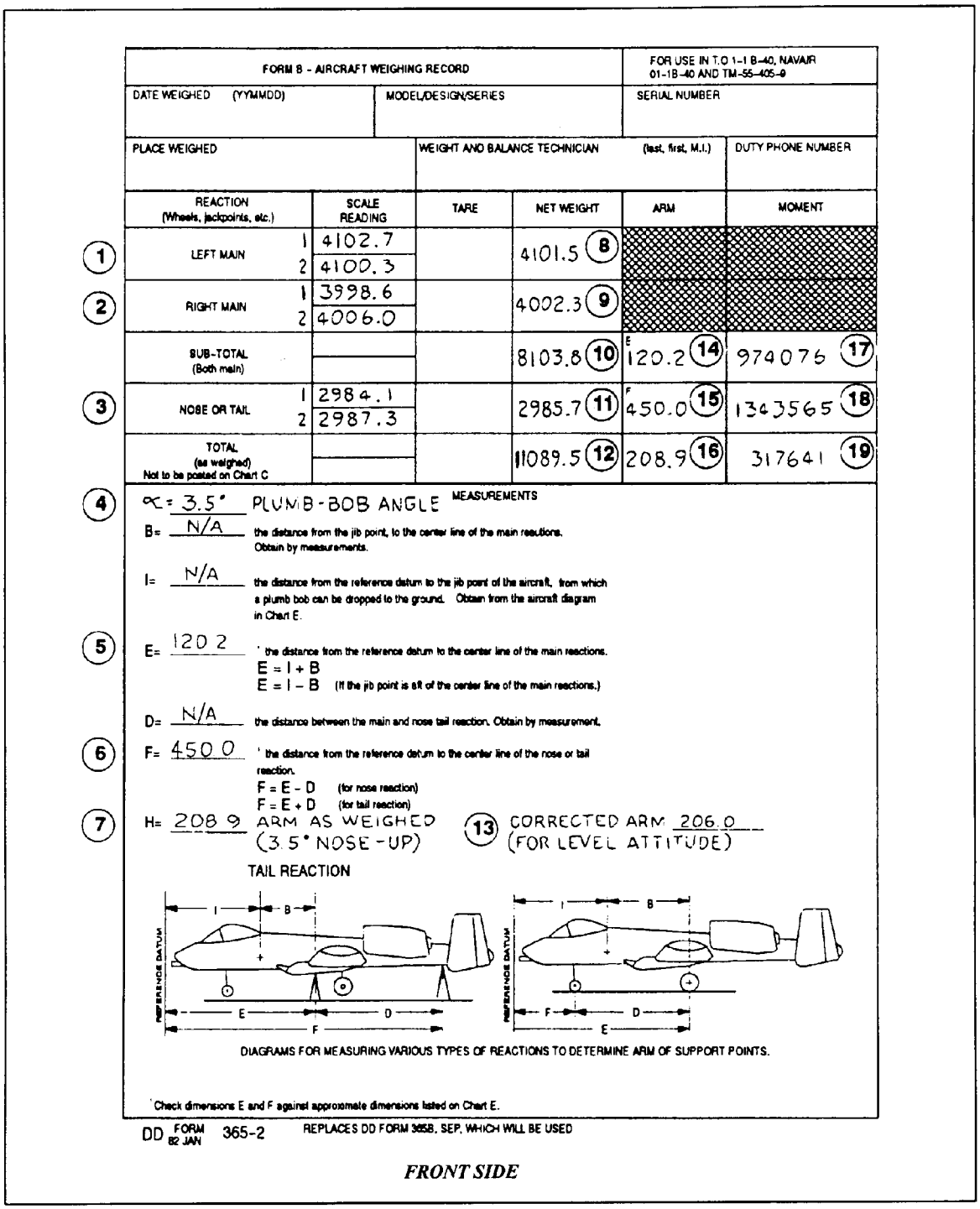
Refer to TM 1-1500-204-23 for general procedures for storage of aircraft.

FLYABLE STORAGE - NO TIME LIMIT

1. Start and operate auxiliary power unit (APU) (WP 0431 00).
   a. Allow APU to run for 10 to 15 minutes.

2100 00-1

FIGURE 20. Example of a storage of aircraft work package.



FORM B - AIRCRAFT WEIGHING RECORD

FOR USE IN T.O 1-1 B-40, NAVAIR 01-1B-40 AND TM-55-405-9

DATE WEIGHED (YYMMDD)	MODEL/DESIGN/SERIES	SERIAL NUMBER

PLACE WEIGHED	WEIGHT AND BALANCE TECHNICIAN (last, first, M.I.)	DUTY PHONE NUMBER

	REACTION (Wheels, jackpoints, etc.)		SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
(1)	LEFT MAIN	1	4102.7		4101.5 (8)		
		2	4100.3				
(2)	RIGHT MAIN	1	3998.6		4002.3 (9)		
		2	4006.0				
	SUB-TOTAL (Both main)				8103.8 (10)	E 120.2 (14)	974076 (17)
(3)	NOSE OR TAIL	1	2984.1		2985.7 (11)	F 450.0 (15)	1343565 (18)
		2	2987.3				
	TOTAL (as weighed) Not to be posted on Chart C				11089.5 (12)	208.9 (16)	317641 (19)

(4) ∝ = 3.5° PLUMB-BOB ANGLE

MEASUREMENTS

B= N/A the distance from the jib point, to the center line of the main reactions. Obtain by measurements.

I= N/A the distance from the reference datum to the jib point of the aircraft, from which a plumb bob can be dropped to the ground. Obtain from the aircraft diagram in Chart E.

(5) E= 120.2 * the distance from the reference datum to the center line of the main reactions.
E = I + B
E = I − B (If the jib point is aft of the center line of the main reactions.)

D= N/A the distance between the main and nose tail reaction. Obtain by measurement.

(6) F= 450.0 * the distance from the reference datum to the center line of the nose or tail reaction.
F = E - D (for nose reaction)
F = E + D (for tail reaction)

(7) H= 208.9 ARM AS WEIGHED (3.5° NOSE-UP)

(13) CORRECTED ARM 206.0 (FOR LEVEL ATTITUDE)

TAIL REACTION

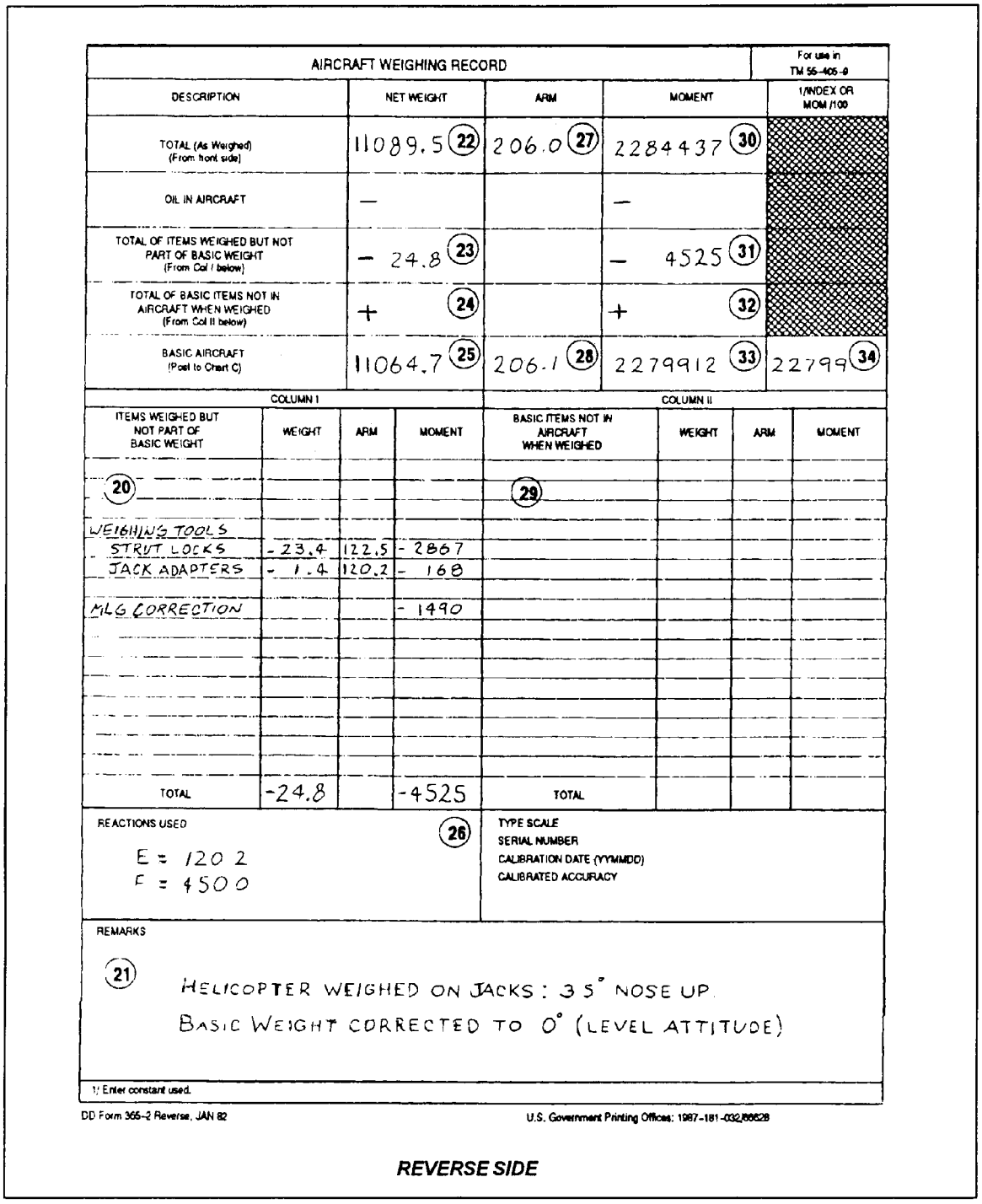
DIAGRAMS FOR MEASURING VARIOUS TYPES OF REACTIONS TO DETERMINE ARM OF SUPPORT POINTS.

*Check dimensions E and F against approximate dimensions listed on Chart E.

DD FORM 82 JAN 365-2 REPLACES DD FORM 365B, SEP, WHICH WILL BE USED

FRONT SIDE

FIGURE 21. Example of an aircraft weighing record DD Form 365-2.



AIRCRAFT WEIGHING RECORD

For use in TM 55-405-9

DESCRIPTION	NET WEIGHT	ARM	MOMENT	1/INDEX OR MOM /100
TOTAL (As Weighed) (From front side)	11089.5 (22)	206.0 (27)	2284437 (30)	
OIL IN AIRCRAFT	—		—	
TOTAL OF ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT (From Col I below)	− 24.8 (23)		− 4525 (31)	
TOTAL OF BASIC ITEMS NOT IN AIRCRAFT WHEN WEIGHED (From Col II below)	+ (24)		+ (32)	
BASIC AIRCRAFT (Post to Chart C)	11064.7 (25)	206.1 (28)	2279912 (33)	22799 (34)

COLUMN I				COLUMN II			
ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT	WEIGHT	ARM	MOMENT	BASIC ITEMS NOT IN AIRCRAFT WHEN WEIGHED	WEIGHT	ARM	MOMENT
(20)				(29)			
WEIGHING TOOLS							
STRUT LOCKS	-23.4	122.5	-2867				
JACK ADAPTERS	-1.4	120.2	-168				
MLG CORRECTION			-1490				
TOTAL	-24.8		-4525	TOTAL			

REACTIONS USED (26)

E = 1202
F = 4500

TYPE SCALE
SERIAL NUMBER
CALIBRATION DATE (YYMMDD)
CALIBRATED ACCURACY

REMARKS

(21) HELICOPTER WEIGHED ON JACKS: 3.5° NOSE UP.
BASIC WEIGHT CORRECTED TO 0° (LEVEL ATTITUDE)

1/ Enter constant used.

DD Form 365-2 Reverse, JAN 82

U.S. Government Printing Office: 1987-181-032/80628

REVERSE SIDE

FIGURE 21. Example of an aircraft weighing record DD Form 365-2 - Continued.

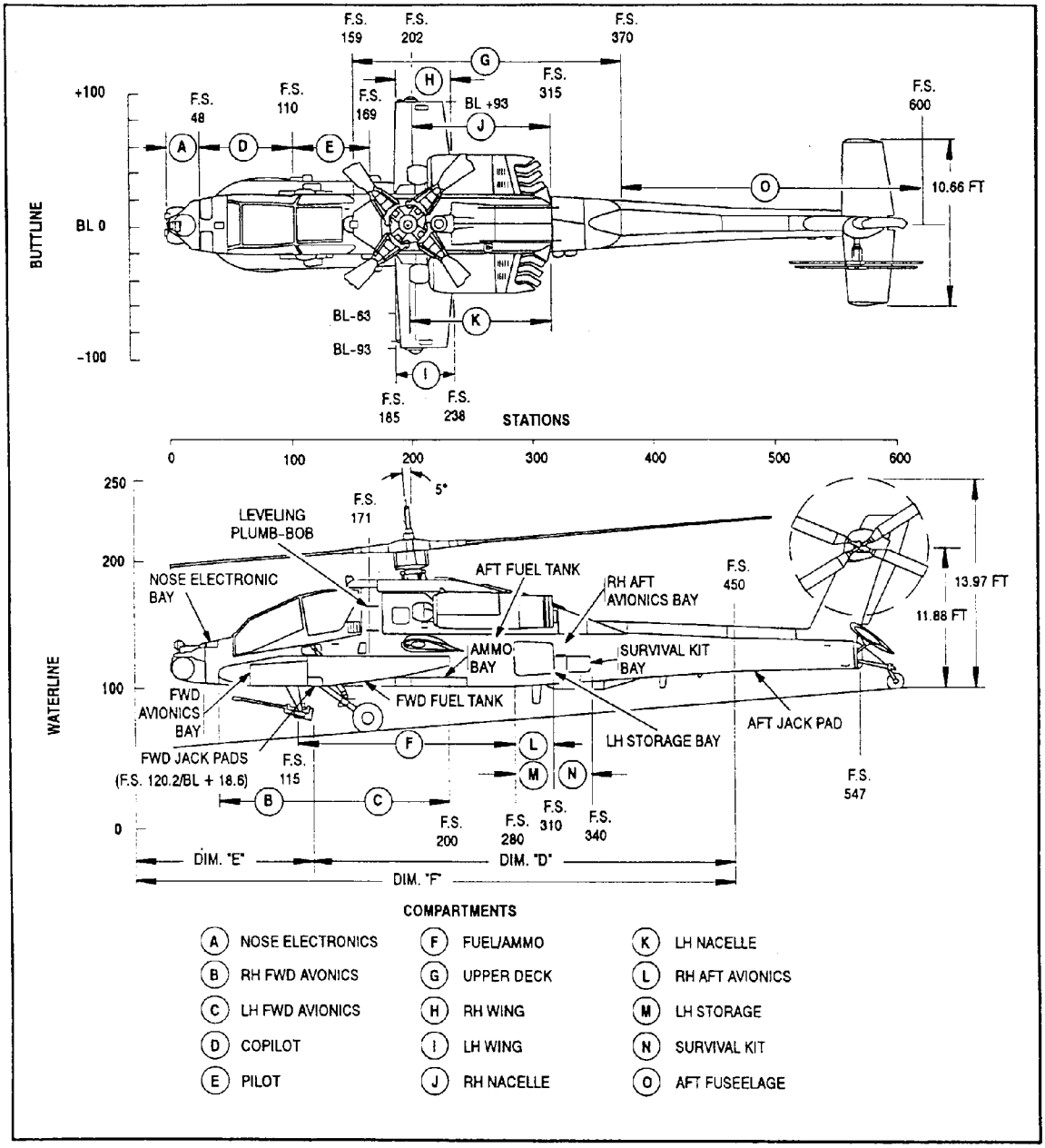


FIGURE 22. Example of a two view chart diagram.

TM X-XXXX-XXX-XX

DEPOT MOBILIZATION REQUIREMENTS **0105 00**

INTRODUCTION

Scope

The purpose of this work package is to streamline and accelerate the overhaul process during the mobilization of the depot.

Explanation of Mobilization Requirements

The mobilization requirements include a list of instructions for modifying preshop analysis and/or overhaul procedures. The pertinent procedures to be modified are referred to by page and work package number, followed by the action to be taken.

MOBILIZATION REQUIREMENTS

The following list of actions (table 1) will be in effect during depot mobilization:

Table 1. Mobilization Requirements.

WORK PACKAGE	ACTION
0088 00	Add "Depending on the urgency of requirements, availability of materials, and fabrication lead time, provisions of this work package may be relaxed. When that occurs, any practical method may be used to inscribe or attach the data to the equipment, i.e., decals."
0090 00	Add "Clean only to the extent necessary to perform preshop analysis."
0092 00	Add "Clean only to the extent necessary to inspect components."
0098 00	Add "Painted surfaces will be treated for corrosion and scratches that expose bare metal. Touch-up painting need not correlate in hue and gloss."
0098 00	Delete.
0098 00	Add "Depending on the urgency of requirements, availability of materials, and fabrication lead time, provisions of this paragraph may be relaxed. When that occurs, any practical method may be used to inscribe or attach the data to the equipment, i.e., decals."

0105 00-1

FIGURE 23. Example of a depot mobilization requirements work package.

TM X-XXXX-XXX-XX

COMPONENT CHECKLIST **0194 00**

INTRODUCTION

Scope

This work package includes a list which is to be copied for each item received for a preshop analysis. After copying one list for each item, the information required must be completed on the checklist prior to the preshop analysis.

COMPONENT CHECKLIST

Name/nomenclature of the equipment/item _____.

Serial number _____.

Date received _____.

Received from (identify unit) _____.

Component name _____.

NSN _____.

Part number _____.

Quantity required _____.

Quantity received _____.

Visual damage found _____.

0194 00-1

FIGURE 24. Example of a component checklist work package.

TM X-XXXX-XXX-XX

QUALITY ASSURANCE REQUIREMENTS **0163 00**

STATEMENT OF RESPONSIBILITY

The depot/contractor is responsible for complying with the quality assurance requirements contained in this work package and in accordance with DESCOM-R 702-1 (DESCOM Product Assurance Program). The commodity manager reserves the right to perform inspections or make changes that ensure the depot work being done meets the quality standards of the DMWR and preserves the inherent reliability of the item.

DEFINITIONS

For quality assurance terms and definitions, refer to the glossary in this DMWR.

SPECIAL REQUIREMENTS FOR INSPECTION TOOLS AND EQUIPMENT

The overhaul facility is responsible for acquisitions, maintenance, calibration, and disposition of all inspection and test equipment. Test equipment to be used by AMC (Army) elements will be acquired in accordance with AR 750-43. All instrumentation and inspection equipment used in compliance with this DMWR shall be calibrated and controlled in accordance with MIL-I-45607B or DESCOM-R-702-1, Depot Quality System (Army facility), with all standards traceable to the National Bureau of Standards. Descriptions of inspecting and measuring equipment are left to the discretion of the overhauling facility to be considered as good shop practice.

CERTIFICATION REQUIREMENTS

The contractor/depot QA activity shall be responsible for ascertaining and certifying personnel skills, equipment, and materiel meet the requirements of the work to be accomplished. Unless otherwise specified in the contract or by PA/CM representative, the contractor/depot QA activity shall provide the PA/CM with statements or other evidence that specifications for such special processes as welding, nondestructive testing, plating, etc., have been complied with. Personnel performing magnetic particle and penetrant tests shall be certified in accordance with MIL-STD-410.

IN-PROCESS INSPECTIONS

In-process quality assurance inspections are contained throughout the overhaul procedures of this DMWR. These inspections are prefixed with the boldfaced letters " **QA**" to identify them, and they are the minimum inspections required. Additional quality assurance inspections may be established by the depot or the commodity manager.

0163 00-1

FIGURE 25. Example of a quality assurance requirements work package.

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QUALITY ASSURANCE REQUIREMENTS - Continued **0163 00**

ACCEPTANCE INSPECTIONS

Items overhauled in accordance with this DMWR will be accepted based on the following criteria:

1. Conformance to quality of material requirements.
2. Conformance to all in-process quality assurance inspections.
3. Conformance to all final assembly testing requirements.
4. Conformance to the preservation, packaging, and marking requirements.

FIRST ARTICLE INSPECTION

The contractor/depot quality assurance activity shall perform a first article inspection on each of the first overhauled assemblies produced in accordance with this DMWR. After contractor/depot acceptance, the procuring agency's quality assurance representative may perform a separate first overhauled article inspection. The first article inspection shall be conducted as follows: (1) Component Inspection (Chapter 3), (2) Final Inspection (Chapter 4), and (3) Processing for Storage and Shipment (Chapter 6).

Submission of Product

The inspection of lot size, lot formation, and presentation of lots shall be as specified by the contracting activity.

Quality Assurance Component Inspection

The component inspection shall be conducted by the procuring activity's quality assurance representative during production of first overhauled item to evaluate conformance of materials and workmanship to drawings and overhaul technical data package.

Final Acceptance

The contractor's/depot's quality assurance activity, along with the procuring activity's quality assurance representative, shall conduct the final acceptance inspection in accordance with the requirements specified herein. During this time, the contractor/depot quality assurance activity shall have available the written inspection system plan, procedures, inspection records, and components.

Processing for Storage and Shipment

Inspection of processing for storage and shipment shall be conducted in accordance with applicable specifications on the first overhauled item and on one of the next ten processed items under the procedure established during the first overhauled item.

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FIGURE 25. Example of a quality assurance requirements work package - Continued.

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WIRING DIAGRAMS **0306 00**

INTRODUCTION

Scope

This work package describes the wiring provisions contained in the aircraft, including all systems or equipment which can be installed or removed later (e.g., mission-related systems/equipment). Wiring diagrams and essential wiring information are provided for all electrical and electronic systems and circuits. All critical wire and cable data has been included.

WIRE IDENTIFICATION

All wires have been identified by number. A tabular list of circuit designators and wire identification diagrams are included. (Refer to table 1.)

ABBREVIATIONS

All abbreviations are in accordance with MIL-STD-12, except when the abbreviation stands for a marking actually found in the aircraft.

WIRING DIAGRAMS

Wiring diagrams have been included for all electrical and electronic systems and circuits.

0306 00-1

FIGURE 26. Example of a wiring diagrams work package.

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Concluding Materiel

Custodian:
Army - TM

Preparing Activity:
Army - TM

Review Activities:
Army - AL, AR, AT, AV, CR, CU, EA, MI, PT, SC3

Project Number:
TMSS A326

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

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2. The submitter of this form must complete blocks 4,5,6, and 7.
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3.DOCUMENT TITLE
DOD Standard Practice, Technical Manual Preparation

4.NATURE OF CHANGE*(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

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8.PREPARING ACTIVITY

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C. ADDRESS *(Include Zip Code)* ATTN: AMXLS-APA Redstone Arsenal, AL 35898-7466	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340

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